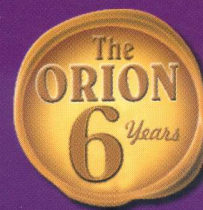


# The ORION

*Medical Journal*



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### Editor's Choice

#### The ORION, exceed, 6 Years milestone

The ORION is excelling another milestone of 6 years unceasing publications and persistently bestowing the Doctor's Community of Bangladesh with a specialty, 'Relentless Voyage towards CME program since 1998'. This enormous endowment is possible because of the continual support of the esteemed readers, the arduous efforts of the valued authors, and the fabulous contribution of the respective members of 'The Advisory & The Review Board'. The ORION also accredits the members of 'The Editorial Board' and all its well-wishers for enduring such immense recognition. This superlative enthuSES The ORION for successive progression to be arrayed into broad medical spectrum.

Therefore, the editorial of the current issue points out the traditional as well as modern pain management and its prospects in Bangladesh (P-258). This issue is also highlighting another valuable topics like coexisting iron deficiency anaemia and thalassemia trait (P-259). One of the original articles trimly sketches the immunization status of under 5 children in Bangladesh and its relation with antenatal care (P-262). Another original article expresses the treatment of non-union of humerus using hybrid tradition ilizarov technique (P-264).

An urban study is focusing the commonest cardiovascular problems in eye surgery patients (P-265). Another review article gives amiable information on hypertension (P-268). A review article flushes the major problems of pre-term, low birth weight babies and their successful management (P-270). A very interesting review article reveals the frequently asked questions on Zinc for the treatment of diarrhea in young children (P-272). Another exciting article clearly demonstrates peripheral neuropathies and their management (P-274).

A review article elegantly discusses the role of hormone replacement therapy (P-277) especially at menopausal stage of women. Another review article documents the importance of the length of peritoneal catheter in VP shunt surgery (P-279). One of the case reports of this issue experiences the laparoscopic retrieval of perforated intrauterine devices (P-281) and the other case report of this issue cites successful management of multiple biliary stones due to roundworm fossil (P-282).

The ORION is very happy to announce that Prof. Harun-Ar-Rashid, Director, BMRC has given his kind consent to be an honorable member of 'The Advisory Board'. The opinion and suggestion of the valued readers are always appreciated to uphold The ORION medical journal day by day.

May the Almighty bless all in the spirit of good health.

The ORION wishes all a very happy, charming and colorful "Shuvo Nababarsha-1412".

#### DR. MOHAMMAD ZAKIRUL KARIM

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# Pain management, 21<sup>st</sup> century and Bangladesh

Shafiq J<sup>1</sup>, Iqbal KM<sup>2</sup>

The ORION 2005 ; 21 : 258

International Association for Study of Pain (IASP) described pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage".

Pain Comes from the Latin word "Poena", meaning "Punishment". In ancient times, Pain was a form of Punishment for sinful activities. For example, Christians believed the pain during childbirth was a consequence of Eve's sin and was transferred to them directly by God<sup>1</sup>. The traditional belief of Christians had to be changed as Queen Victoria in 1847 accepted relief of labour pain by Chloroform administered by James Simpson during the birth of Prince Leopold<sup>1,2</sup>. For about past 2000 years, acupuncture had been practiced by the Chinese as pain management method along with treating other ailments. It developed from their belief in the existence of 'chi' or 'meridien' that is responsible for transmitting pain. World War II (1936-1946) paved the way for modern pain management as a great number of phantom limb causalgias as well as sympathetically mediated pain syndrome started to be noticed. John Bonica, popularly recognized as "father of pain" was the initiator of the concept of multidisciplinary, multimodal management for chronic pain. With increasing demand for organized pain management certain areas of pain medicine got the priority for being addressed. Labour analgesia, acute pain service and management of intractable pain attracted the clinicians for its development.

Now-a-days, with newer drugs and newer techniques, pain medicine has expanded substantially and found a newer horizon. Pain specialists are now being trained properly with formidable programme by credible organizations in the advanced countries.

Pain in general, can be divided into acute and chronic pain. There are different modalities for pain management. Starting from rest, medication, and exercise different methods of nerve blocks are considered according to the diagnosis. Newer interventional techniques are coming up to treat the pain patients. For example Radio frequency, Cryonucleolysis, Implantable infusion pumps, Vertebroplasty are some of the newer 'state of the art' techniques.

In Bangladesh, Pain practice started in a small scale in mid 80's. Pain management became more noticed when the first organized; multimodal pain clinic was started in 1993 at BSMMU (Formerly PG Hospital). In 1997, Bangladesh Society for Study of Pain (BSSP) was established which has now become an affiliated chapter of International Association for Study of Pain (IASP). BSSP has been organizing bimonthly scientific programmes, annual congresses workshops and international congresses. BSSP has got a yearly exchange programme with Japanese Universities and has been organizing training Pain specialist from Japan. Till now more than 10 Pain specialists have been trained abroad.

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As Bangladesh is a developing country, it would be unwise at the moment to invite sophisticated management technique(s) not only for high cost benefit ratio but also the equivocal outcome of some of the modalities practiced. In situation like this one has to turn to indigenous and less expensive interventional techniques that can be adopted with relative ease.

For a start, BSSP is now organizing awareness programme on pain and pain management. In the year, 2004, as a part of global awareness programme started by IASP, BSSP responded by organizing a round table conference on "Global Day Against Pain" to increase the awareness about pain and its management among physicians drawn from relevant specialties, allied health care professionals, important personalities of the society as well as representatives from both print and electronic media. A fruitful discussion on that occasion paved the way for initiating possible positive outcome for future

Pain Medicine, although regarded as a subspecialty devoted to managing acute and chronic pain conditions, is now a well-established and recognized discipline of medicine in Bangladesh. The workers in this field at present are trying to consolidate the resources and manage the problems at a single outpatient clinic. The object of these pain clinics in Bangladesh is to offer one stop solution for pain management with a vision to create awareness about pain and its possible cure amongst sufferers as well as relatives. As a result, the numbers of physicians, particularly anesthesiologists equipped with special know how regarding pain management is on the increase.

In Bangladesh, Pain Clinics seem to be getting popular in both public and private sector hospital and clinics. There are now, a number of private Pain Clinics in Dhaka and also one in Khulna. A list of Pain Clinics in Government and Private sector is available with BSSP. Pain Specialists in these Pain Clinics are trying to relieve the pain of the patients who have spent a lot of time and money in various medical and surgical specialties without getting any redress. In Pain Clinics, patients not only get freedom from pain through a number of therapeutic and interventional procedures but also some psychological remedial measures. The Pain Clinics concept should be established all over the country for the benefit of pain patients as it has the advantage of having simplicity and general acceptability.

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# Coexisting iron deficiency anemia and thalassemia trait

Rahman MH<sup>1</sup>, Yunus ABM<sup>2</sup>, Begum M<sup>3</sup>, Rahman MJ<sup>4</sup>, Hoque MZ<sup>5</sup>, Rahman M<sup>6</sup>, Ahmed M<sup>7</sup>, Aziz MA<sup>8</sup>

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## Abstract

The proportion of hemoglobin types may be affected by both the genetic and environmental factors. Hypochromic and microcytic red cell morphology is the most commonly encountered abnormality in a hematology laboratory. This study was carried out on 200 cases of mild to moderate anemia with hypochromic microcytic blood picture and their iron status and hemoglobin A<sub>2</sub> and Hb-E levels were determined to identify the presence of coexisting iron deficiency anemia and thalassemia carriers also called traits (both beta thalassemia trait and Hb-E trait). The full blood count was performed by hematology auto-analyzer, initial carrier detection of thalassemia was done by NESTROF (naked eye single tube red cell osmotic fragility) and subsequently confirmed by hemoglobin electrophoresis which was taken as gold standard; serum ferritin by radioimmunoassay (RIA) and Hemoglobin A<sub>2</sub> and Hemoglobin E levels were estimated by Agarose gel Hb electrophoresis at an alkaline pH (8.6). The importance of the study of Peripheral Blood film (PBF) with red cell indices, serum ferritin and Hb electrophoresis are prerequisite for proper diagnosis of coexisting iron deficiency anemia (IDA) and thalassemia trait (and most of them are either beta thalassemia trait or hemoglobin-E trait).

Follow up examination with oral ferrous sulphate therapy revealed a definite restoration of hemoglobin A<sub>2</sub>, and Hb-E in corresponding study subjects toward the ratios observed in subjects with non-iron deficiency. The response to a short course of oral iron therapy should therefore be carefully monitored, and the possibility of thalassemia traits (or carriers) as well as non-compliance with treatment should be considered and enthusiastic screening for hypochromic microcytic anemia is of prime importance to avoid the unnecessary use of iron supplements.

## Introduction

A normal adult human has at least three types of hemoglobin, namely, A, A<sub>2</sub>, and F with the molecular formulas of  $\alpha_2\beta_2$ ,  $\alpha_2\delta_2$ , and  $\alpha_2\gamma_2$  respectively. Hemoglobin A<sub>2</sub>, constitutes approximately 3.0% and Hemoglobin F less than 1% in the normal person and

the rest is hemoglobin A<sup>1,2,11</sup>. These proportions are remarkably constant among the normal people, illustrating precise quantitative control of hemoglobin synthesis. However, the proportions of the hemoglobin types may be altered by several reasons<sup>11</sup>.

It has been estimated that about 20% of the world population are iron deficient and iron deficiency anemia is the most common type of anemia throughout the world and dietary deficiency is the commonest cause<sup>5,6</sup>. Iron is an essential element in humans, being the central iron in heme, the non-protein constituent of hemoglobin. Hemoglobin is responsible for the transport and delivery of oxygen from the lungs to the tissue and iron deficiency causes failure of heme synthesis.

On the other hand, thalassemia is the commonest inherited gene disorder prevalent worldwide<sup>1,2,9,10</sup>. Bangladesh lies in the thalassemia belt and Beta-thalassemia is common here<sup>2,3,5</sup>. World Health Organization (WHO) estimates that at least 7.0% of the world populations are carriers of different inherited disorders of Hemoglobin<sup>4</sup>. It is predicted that when the world population finally stabilizes, at least 8.0% of the population will be carrier or trait<sup>2,10</sup>. The world population of carriers of beta thalassemia trait is reported to be more than 100 millions world wide and about 100,000 children with thalassemia major are born each year<sup>2,6</sup>. Abnormal hemoglobin, called hemoglobin-E, which is quite common in Bangladesh, has also a worldwide carrier of about 53 millions<sup>2,6,10</sup>. In Bangladesh no definite data regarding carrier status of hereditary hemoglobin disorder exist. No screening programme had ever been taken in any population group. A conservative World Health Organization (WHO) report estimates that about 3.0% of populations are carriers of Beta thalassemia and 4.0% are carriers of Hb-E in Bangladesh, which means that there are about 3.6 millions carriers of beta thalassemia and 4.8 millions are carriers of Hb-E and affected birth per thousand of Beta thalassemia is 0.106 & 0.300 of Hb-E/ Beta thalassemia<sup>2,6</sup>. It is presumed that approximately six thousands thalassemic children are born each year in Bangladesh<sup>6</sup>.

## Materials and methods

The study was conducted in the Dept. of Pathology, Bangladesh Institute of Child Health and Dhaka Shishu Hospital, Sher-e Bangla Nagar, Dhaka from January 2000 to November 2001 to identify the cause of hypochromic microcytic blood picture and find out the coexisting of Iron Deficiency Anemia (IDA) and thalassemia trait. A total of 200 patients with mild to moderate anemia from various reasons were included in this study. The diagnosis of iron deficiency anemia was based on the clinical findings, the presence of hypochromic microcytic blood picture, low serum ferritin levels (<10 ng/ml). These patients usually came in with chronic anemia, many having sore tongues, angular stomatitis, cheliosis and koilonychia. After initial examinations, they were given oral ferrous sulphate daily, and when, possible, follow-up examinations were performed after 12 weeks of iron supplements. A few patients, who fit the clinical and red cell morphologic criteria but lacked the serum ferritin one and who responded well to iron therapy, were also included. A reduction in the size of the red cells (microcytosis) was defined

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volume of <74 fl based on the lower limit for the mean cell reference range (mean  $\pm$  2 SD) defined by Issaacs et al<sup>13</sup>. If the MCV was <74 fl and the percentage of HbA<sub>2</sub> was greater than 3.5% beta thalassemia trait was diagnosed. Similarly, if the percentage of Hb-E was between 20-35% Hb-E trait was considered. The patients were offered oral iron supplements (2-3 mg/kg elemental iron as ferrous sulphate) for 12 weeks, after which the blood test was repeated. The response to oral iron therapy was considered to confirm iron deficient erythropoiesis if the MCV is increased by at least 5 fl or >74 fl<sup>13</sup>.

Standard hematological techniques were employed and the study subjects were routinely tested for the followings : Red cell count, Hb (g/dl), Red cell indices (MCV, MCH & MCHC) by hematology autoanalyzer, hemoglobin phenotype (HbA<sub>2</sub> and Hb-E) was identified by agarose gel electrophoresis, serum ferritin (RIA) and the naked Eye single tube red cell osmotic fragility test (NESTROF). NESTROF was carried out as advocated by mehata et al and kattamis et al<sup>5,7,8</sup>.

### Results

The age and sex distribution of the study cases are presented in table-1. Of the total 200 cases, 113 (56.5%) were males and 87 (43.5%) were females with a male to female ratio of 1.3:1. The age of the patients ranged from 5-45 years.

Of the 200 anemic patients (diagnosis was based on the clinical findings, the presence of hypochromic-microcytic blood picture, low serum ferritin <10 ng/ml level and phenotypic pattern of Hb electrophoresis), 177 were normal Hb electrophoresis with evidence of iron deficiency (IDA), 08 were  $\beta$ -thalassemia trait and 15 were Hemoglobin-E trait in association with iron deficiency during their initial screening before giving oral iron supplement (Table-II). After 12 weeks of iron supplements, results are re-evaluated and showed that out of 200 patients, 174 patients, are iron deficient usually for anemia of chronic disorders or due to hookworm infestations, 11 patients were beta-thalassemia trait and 15 patients were Hb-E trait in association with IDA (Table-III). These cases are reevaluated with iron supplement. However, the rates of increment of the hemoglobin, hematocrit, HbA<sub>2</sub> and Hb-E during the iron supplement were irregular.

**Table - I : Age & sex distribution of study cases n=200**

Age groups in years	Sex		Total	%
	Male	Female		
5-9	34 (17%)	26 (13%)	60	30%
10-14	43 (21.5%)	31 (15.5%)	74	37%
15-45	36 (18%)	30 (15%)	66	33%
Total	113 (56.5%)	87 (43.5%)	200	100%

**Table - II : Summary of the tests parameters in the study subjects before iron therapy (mean values)**

No. of the patients (n=200)	Hb (gm/dl)	Red cell count (X10 <sup>12</sup> /L)	Hct (%)	MCV (fl)	MCH (pg)	S. ferritin (ng/ml)	Pattern of Hb electrophoresis	
IDA (n=177)	6.40	3.20	18	65	68	6.45	Hb A	96.80
							Hb A <sub>2</sub>	1.80
Beta thalassemia trait with IDA (n=08)	8.45	4.30	15.6	68	63	7.85	Hb A	95.0
							Hb A <sub>2</sub>	3.60
Hemoglobin-E trait with IDA (n=15)	9.25	4.50	17.3	67	66	8.20	HbA	78.35
							HbE	20.50

**Table - III : Summary of the tests parameters in the study subjects after 12 weeks of iron therapy (mean values)**

No. of the patients (n=200)	Hb (gm/dl)	Red cell count (X10 <sup>12</sup> /L)	Hct (%)	MCV (fl)	MCH (pg)	S. ferritin (ng/ml)	Pattern of Hb electrophoresis (%)	
IDA (n=174)	10.4	4.40	33	81	79	27.45	Hb A	96.30
							Hb A <sub>2</sub>	2.60
Beta thalassemia trait (n=11)	11.45	4.90	35	74	70	38.85	Hb A	93.40
							Hb A <sub>2</sub>	5.20
Hemoglobin-E trait (n=15)	11.85	5.10	38	75	69	40.2	HbA	73.30
							HbE	25.50

Eight patients were diagnosed as  $\beta$ -thalassemia trait with IDA during their initial screening. In these patients the hemoglobin A<sub>2</sub> values subsequent to iron therapy were elevated to the range usually observed in  $\beta$ -thalassemia trait; the hypochromicity and microcytosis of the erythrocytes were also marked than in the iron deficient individuals who were homozygous for hemoglobin A. Another three patients, who were initially diagnosed as IDA on the basis of clinical findings, peripheral blood film, serum ferritin and HbA<sub>2</sub>, subsequent electrophoresis after 3 months of oral iron therapy shows that they were  $\beta$ -thalassemia trait (HbA<sub>2</sub> >3.5%). In each of these patients the amount of hemoglobin A<sub>2</sub> increase as did the Hematocrit and Hb concentration following iron therapy.

Fifteen patients were diagnosed as Hb-E trait with IDA during their initial screening. The average hematocrit of 15 patients with hemoglobin E was 17.5 percent. The concentration of Hb-E varied between 17-27%, averaging 20.56% (in contrast to their normal values of 20-35%, who were not iron deficient). After 12 weeks of oral iron therapy, with the exception of one case, there was an increase in the amount of Hb-E with the hematocrit and hemoglobin concentrations, reaching the normal range in most cases. Other hematological parameters like MCV and MCH were also performed showing a definite restoration to slight extent but does not reach the normal reference values.

The study result was also interpreted with red cell counts and red cell indices (MCV, MCH and MCHC). Low MCV (<74 fl) & MCH (<27pg) with a relatively high red cell counts are associated with either beta-thalassemia trait or Hb-E trait and low MCV, MCH and low red cell counts are usually associated with iron deficiency Anemia (IDA).

### Discussion

The purpose of this study was to evaluate the existence of concomitant IDA and thalassemia trait (both beta-thalassemia trait & Hb-E trait) in a hypochromic microcytic blood picture which is a major problem in the correct diagnosis of Beta thalassemia trait & Hemoglobin-E trait and IDA.

In coexisting IDA with thalassemia trait, there is drop of hemoglobin A<sub>2</sub> & Hb-E<sup>3,5,11</sup>. Due to fall of hemoglobin A<sub>2</sub> it creates a much diagnostic problems because we can say as  $\beta$ -thalassaemia trait only when HbA<sub>2</sub> is more than 3.5% which frequently arises in association with coexisting  $\beta$ -thalassaemia trait and iron deficiency anaemia. HbE also decreases but it does not create much diagnostic problems because Hb-E level 20-35% is the diagnostic hallmark for hemoglobin-E trait<sup>13</sup>. However, in many patients with beta-thalassemia trait and iron deficiency, the Hb A<sub>2</sub> will still be raised or normal. It is important to note that in beta-thalassemia trait the concentration of hemoglobin A<sub>2</sub> which is usually elevated, may be significantly reduced in iron deficiency and that the, diagnosis of this conditions is not possible on the basis of Hb

electrophoresis. This is of particular importance when a study is conducted in an area where iron deficiency is also prevalent. No significant alteration in the amount of the alkali-resistant Hemoglobin was observed in iron deficiency. This hemoglobin is normally present in minute amounts, <1%<sup>11</sup>. The altered proportions of hemoglobin A<sub>2</sub> in iron deficiency anemia may not have a major physiological effect, since its amount is so low in any case. But hemoglobin E constitutes 20-35% of the hemoglobin in heterozygotes and almost 100% in homozygotes<sup>11,12</sup>. Since intraerythrocytic hemoglobin E has lower oxygen affinity than hemoglobin A in similar condition, it will, therefore, release oxygen to the tissues more readily than the normal hemoglobin and would then be particularly useful in anaemic state. The reduction of the hemoglobin E/A ratio in iron deficiency anemia thus seems to deprive its carrier of the expected benefit. Under the stress of iron deficiency the possession of hemoglobin E would appear to be a further disadvantage, if it is subject to a more drastic reduction than hemoglobin A, carriers of hemoglobins E would be more anemic than a normal persons being equally iron deficient. However, this will not be the case if the reason for the decreased hemoglobin E/A ratio is a partial switch-over of hemoglobin synthesis from hemoglobin E to A<sup>11</sup>.

Possible mechanisms responsible for alterations in hemoglobin ratios under iron deficiency should now be briefly considered : **First**, in iron deficiency anemia there is increased red cell destruction. If there is an unequal distribution of hemoglobin types among the red cell populations, differential destruction of the erythrocytes will lead to alteration of the hemoglobin types<sup>11</sup>. There is not yet evidence that haemoglobins A, A<sub>2</sub> & E are contained in different erythrocytes. **Second**, if different peptide chains compete for heme moieties which are adequate for all people in a normal condition, then in iron deficiency which causes a heme deficit, the usual proportion of the haemoglobin types will be altered in favor of the one competing better. **Third**, iron may directly affect the rate of globin synthesis<sup>11</sup>. Speculatively, this may happen at any of the multiplicity of steps along the pathway of protein synthesis. Recent *in vitro* observations have demonstrated the role of iron in globin synthesis and polysome function. The lack of iron in the incubation mixture causes retardation in the rate of globin synthesis and desegregation of polysomes. If explanation for the altered expressivity of hemoglobin types is to be on the basis, it is necessary to hypothesize that polysomes bearing different messenger RNAs are not equally affected by iron shortage. These arguments may be subjected to testing.

## Conclusion

The occurrence of hereditary hemoglobin disorders in Bangladesh has been known for long time although the data is limited. The actual magnitude of these hereditary hemoglobin disorders have been masked by nutritional deficiency anemias. As because, iron deficiency anemia is the commonest type of nutritional anemia and coexisting iron deficiency anemia with beta thalassemia trait and hemoglobin-E trait is also common here, so it is wise to perform appropriate and proper investigations when hypochromic and microcytic blood picture is seen. It will also therefore be important to avoid prolongation of such treatment in suspected iron deficiency without monitoring of the response by repeated blood counts; where the response is poor, additional tests will be required, including Hb electrophoresis to find out the phenotypic pattern of hemoglobin.

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# Immunization status of under five children and its relation with antenatal care

Pervin T<sup>1</sup>, Ali MH<sup>2</sup>, Amin R<sup>3</sup>

The ORION 2005 ; 21 : 262-263

## Abstract

This cross sectional type of descriptive study was conducted to find out the immunization status of under 5 children and its relation with antenatal care among the 3<sup>rd</sup> and 4<sup>th</sup> class employees living in Dhaka University Residential area from January 1<sup>st</sup> to March 31<sup>st</sup>, 2002. 185 respondents were interviewed purposively through face to face interview using an interview schedule. 51.9% respondents were from lower class (<5000 Taka/month) and 56.7% had male child. Among 99% immunized child 85.8% were completely immunized; of them 93% completed within 1 year. Majority (67.6%) of children had their first contact of immunization within 6 weeks, but only one had his 1st contact at birth. 23% were taken irregularly and reasons were illness of child, fear of side effects, family problems, etc. 95.7% mother received antenatal care and 88.1% had completed their TT schedule. BCG coverage was 98.9%, 1<sup>st</sup> and 3<sup>rd</sup> dose of DPT and OPV was 98.3% and 92.4% respectively and measles 84.8%. Competition was a maximum among female children (98.9%). Immunization coverage was higher among the child whose mother received antenatal care and lowest among the child of illiterate mother.

## Key words:

Immunization status, ANC and immunization status.

## Introduction

Health is essential to the satisfaction of human needs and to an improved quality of life<sup>1</sup>. The mortality and morbidity in infants under 5 years of age are due to communicable diseases, like measles, diphtheria, whooping cough, tuberculosis etc<sup>2</sup>. Immunization is an essential component of primary health care to combat above mentioned communicable diseases<sup>1</sup>. But in Bangladesh due to apathy, lack of knowledge and superstition the response is rather inadequate<sup>3</sup>. Target population of EPI programs are all 0-1 children and all 15-49 years of child bearing women (TT) with the objective of this is to reduce infant mortality and morbidity<sup>3</sup>.

If a nation has dream it can only be brought into reality through its children<sup>4</sup>. Over 3 million death still occur annually from the diseases like Diphtheria, Pertusis, Tetanus as well as some 250 thousand cases from Poliomyelitis<sup>5</sup>. This specific type of immunity can be produced artificially administration of different type of vaccine<sup>6</sup>. BCG vaccine is recommended at birth or as soon as possible thereafter in accordance with standard policies for immunization<sup>7</sup>. The target people receives 1<sup>st</sup> dose of vaccines and they don't come for the 2<sup>nd</sup>, 3<sup>rd</sup> and later doses. The reasons behind that are illness of child, absence of vaccinator, unavailability of vaccine and other family problems<sup>8</sup>.

National vaccination coverage of 2000 was BCG-95%, OPV3/DPT3-68%, Measles-61% and fully immunized child was 53%<sup>9</sup>.

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In this study we have made an attempt to observe the immune status of under 5 children with a view to detect the deficiency for which we have not been able to achieve our target of EPI program and also evaluates the relationship between the immunization status of under 5 children with antenatal care of mother.

## Objectives

General objectives was to study immunization status under 5 children and its relationship with antenatal care, specific objectives were to determined age and sex specific immunization coverage, to estimate the immunization status of children in respects to parents education and to find out the relationship with antenatal care.

## Methodology

This was a cross sectional type of descriptive study conducted in 3<sup>rd</sup> and 4<sup>th</sup> class employee's quarter of Dhaka University from January 1<sup>st</sup> to March 31<sup>st</sup>, 2001. The study populations were all under 5 children living in DU residential area. A total of 185 mothers were interviewed by face-to-face interview using an interview sheet. Then the data was analyzed manually and using SPSS program.

## Results

Regarding age and sex distribution among 185 children, 31.9% and 29.7% were in the age group of 13-24 months and 25-36 months respectively. 56.7% were male infants and 43.3% were female infants.

Table -1 : Age and sex distribution of under 5 children

Variables	Number	Percentage
Age (in months) :		
0-12	26	14.1
13-24	59	31.9
25-36	55	29.7
37-48	32	17.3
49+	13	7
Sex :		
Male	105	57
Female	80	43
Total	185	100

Concerning educational status majority of the children's father and mother were illiterate i.e. primary level to graduate and onwards

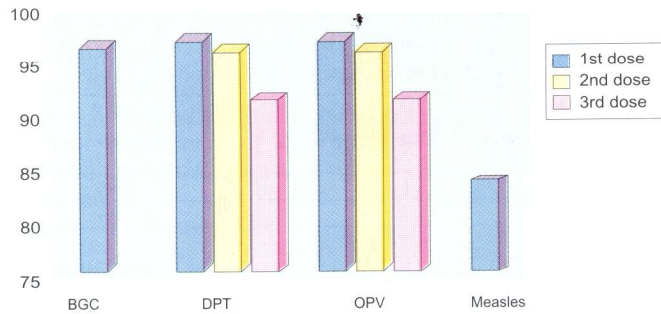
Table -II : Educational Status of Father and Mother

Educational Status	Number		Percentage	
	Father	Mother	Father	Mother
Illiterate	1	11	0.5	5.9
Primary	21	57	11.4	30.8
Secondary	33	45	17.8	24.3
SSC	29	32	15.7	17.3
HSC	57	23	30.8	12.4
Graduation and above	44	11	23.8	5.9
Non formal Education	0	6	00	3.2
Total	185	185	100	100

By economic conditions 51.9% were from lower class (<5000) and only 0.5% from higher class (>25000). Out of 185 children, 0.5% of the babies had his first contact at the birth and rests were within and after 6 weeks of life.

**Table - III : Age of baby at first contact of immunization.**

Age At birth	Number	Percentage
1-6 weeks	123	67.6
>6 weeks	59	31.9
Total	183	100



**Figure - I : Immunization coverage**

Obstacles of immunization were illness of child (42.9%), mothers illness 12.9%, fear of side effects 10% etc.

**Table - IV: Obstacle of Immunization (N=70)**

Obstacles	Number	Percentage
Immunization	1	1.4
Vaccine not available	2	2.4
Vaccinator was absent	1	1.4
Mother too busy	8	11.4
Family problems and illness of mother	9	12.9
Child ill	30	42.9
Fear of side effect	7	10

82.5 monther received antenatal visit 3 or more times and 17.5% less than 3 times. 88.1% mother completed their TT vaccine whereas 11.9% didn't. 86.1% children of the mothers who received antenatal care completed their immunization and 80% whose mother did not receive antenatal care where immunized.



**Figure - II : Immunization status of children in relation to antenatal care of their mother.**

**Discussion**

This study represents the vaccination coverage status of under 5 children against EPI diseases and its relation with antenatal care. It was found that 85.8% of the children were immunized, but 76% had completed within 1 year of life. BCG, DPT/OPV 3, Measles vaccine coverage were 98.9%, 98.3% and 92.4% and 84.8% respectively. These findings are very similar to the findings of national survey and other study<sup>4,9,10,12</sup>. 12% of the women were not immunized against Tetanus. Drop out rate from DPT 1 to DPT 3 was only 6%, which is similar to the national survey findings<sup>9</sup>. 43% of immunization failure was due to the illness of child, 13% and 10% due to illness of mother and fear of side effect respectively. These results are consistent with other study findings<sup>2,4,8,10,11</sup>. But most of the child was suffering from fever during the shot, which is not absolute contraindication of vaccination. So parents and health personnel should be properly informed about the contraindication of vaccination. Immunization coverage was more regular and higher (86.1%) among the child of mothers who received antenatal care and lowest (70.1%) among the child whose mothers were illiterate.

**Conclusion**

It is concluded that the activities of EPI to be continued on a long turn basis through proper information and motivation in the Primary Health care concept. The Govt. should create more awareness among the vaccine receivers and the health workers to ensure BCG vaccination at birth.

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# Treatment of non union of humerus using hybrid tradition ilizarov technique

Bari MM<sup>1</sup>, Rizvi KAA<sup>2</sup>, Chowdhury MHA<sup>3</sup>, Khan HR<sup>4</sup>, Rahman GA<sup>5</sup>

The ORION 2005 ; 21: 264

## Abstract

The management of the non union of the humerus is one of the most challenging problems that the surgeon confronts in his practice. The procedures traditionally used are: I. M. Nailing, interlocking, plating, transplantation of allograft. In our series, 43 cases with non union has been treated by G. A. Ilizarov technique. The age range were: 20-60 years with an average of 30 years. The initial treatment were done by DCP, rush nails and plates with screw fixation. The duration of treatment range from 5-10 months (average 7 months). With the application of Ilizarov fixator with hybrid tradition a good range of elbow and shoulder motion were achieved. The average follow up period was 5 years with a range of 1-9 years. Union was achieved in all the 43 cases.

## Index words

Non union of humerus, Hybrid tradition Ilizarov technique.

## Introduction

Humeral non union are often painful and unstable. Good surgical management is sometimes very difficult. Fixation with plates and screws and bone grafting may fail. The outcome of revision operation may be adversely affected by restricted movement of elbow. In most cases, the patient has been several times operated with resultant scarring and cicatrization of the surrounding soft tissues. These renders the environment around the fracture site avascular. Non union occurs most commonly in transverse or comminuted, middle and lower one-third fractures, fractures with distraction or soft tissue interposition, open fractures, infection and fractures treated by internal fixation. Non union rate in closed fractures varies from 0-6%, while the non union rate after open reduction ranges from 0-12%. Success rates after DCP and autogenous grafting ranges from 90-95%. Recent studies showed that hybrid tradition Ilizarov technique is more popular than vascularised bone grafts for humeral shaft non unions<sup>2,3,4</sup>.

## Methods

For the last 13 years(1992-2004) in different hospitals including NITOR for 43 cases of humeral non union aged from 20-60 years were treated. 32 cases were following previous operation failure and 11 cases were failure of conservative treatment. 2 pairs of transosseous crosswires were fixed to two rings one above and one below the non union site. Half pins or schanz screws with one 90 degree Italian arch with oblique support was connected with the upper ring for further stabilization<sup>7,9</sup>. Correction and compression obtained through threaded rods to induce osteogenesis.

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5. Dr. Gazi A. Rahman, MS, CA, NITOR



Fig-1: Implant failure non union of the humerus

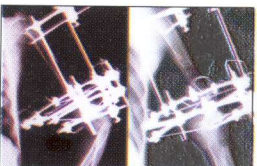


Fig-2: Union is achieved after 6 months

## Results

In all the 43 cases, bony union was achieved. The mean period of bony union was 7 months. The range was 5-10 months. The main aetiology was open fractures as presented on Table I.

Open fractures	23 cases
Complication of surgically treated fractures (failed open reduction)	12 cases
Osteomyelitis	8 cases
Total	43 cases

## Discussion

Nailing, plating and bone grafting are the accepted traditional method of managing non union of humerus. But a significant number of patients requires other procedures. Ilizarov technique for the treatment of humeral non union with hybrid has many advantages but several technical problems may arise if the details of the technique are not followed precisely. For successful outcome it is important to maintain the bone ends in good and stable fixation. Another important factor is to achieve good contact with the bones. A partial contact in one of our 3 cases was the cause of non union but in those cases we refixed the apparatus and later on good union was achieved. Fixation with Ilizarov apparatus in the upper middle and lower third by using half pins or schanz screws with 90 degree Italian arch and oblique support is biomechanically and anatomically superior to that with a plate<sup>1,5,6,8</sup>. The most important thing is that the patient can mobilize the shoulder and elbow soon after the operation with Ilizarov apparatus.



Fig-3: After removal of Ilizarov fixator full consolidation is seen.

## Conclusion

The Ilizarov hybrid tradition technique for the treatment of humeral non union is very effective and offer many advantages. The advantages of this technique are that it allows for the simultaneous treatment of infection, non union, shortening, deformity and problems of soft tissues. In our all cases complications were not serious and did not affect the results.

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# Commonest cardiovascular problems in eye surgery patients : An urban study

Haque MM<sup>1</sup>, Alam N<sup>2</sup>

The ORION 2005 ; 21 : 265-267

## Abstract

This retrospective study was carried out in Cardiology department of Islamia Eye Hospital & MAI Institute of Ophthalmology, Sher-e-Bangla nagar, Farmgate, Dhaka for the period of one year from July 01,2003 to June 30, 2004. on 18,334 human subjects who had been referred from indoor & outdoor department of this hospital for opinion regarding operation and management of related cardiovascular problems. Total sample size was 18,334, Male - 8616 cases (47%) and Female - 9718 cases (53%)

## Introduction

With the advance of modern medical science cardiovascular check up is mandatory for all surgical interventions<sup>1</sup>. Many simple surgical procedures may be fatal if there is associated any cardiovascular problems<sup>2</sup>. As life is becoming complex day by day, the incidence of HTN, CHD, DM etc are also increasing alarmingly<sup>3</sup>. For happy & peaceful life our expectation is always safe & sound surgical procedures without any uneventful situations. As eye diseases are also multifactorial & multidimensional cardiovascular evaluation is necessary for safe eye surgery<sup>4</sup>. Cardiologists play a vital role in management of medical & cardiovascular problems associated with eye diseases.



Fig : Patient suddenly developing cardiac arrest, VT or VF during operation can be managed by D.C shock.

## Material & methods

The aims & objectives were-

- I. To find out the incidence of cardiovascular events in association to eye diseases,
- II. To determine the prevalence of eye related medical complications,
- III. Management of related medical & cardiovascular problems,
- IV. To provide overall cooperation to the ophthalmologist for better eye care.

This study was carried out by searching the previous hospital documents with the help of doctors, nurses, ward assistants & official staffs of this hospital.

## Results

Numerical data were obtained from various records very carefully, narrated below in tabulated forms with statistical analysis.

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2. **Dr. Nazmul Alam**, MBBS, D.Card, M.Phil  
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Table -I : Gender distribution of patients (n =18,334)

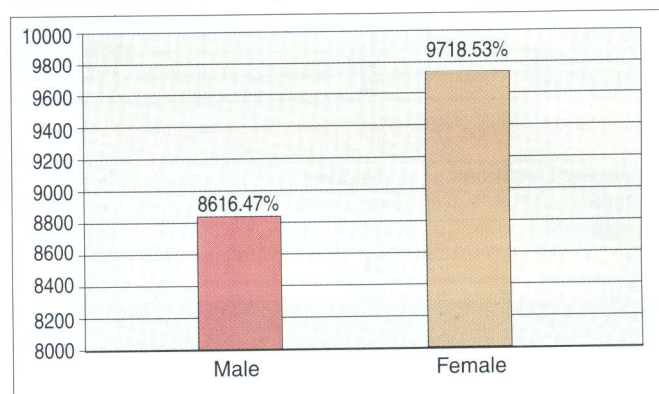


Table-II : Age distribution of patients (n =18,334)

Age years	In number	%
0-9	201	1.1
10-19	953	5.2
20-29	1173	6.4
30-39	1668	9.1
40-49	4015	21.9
50-59	4492	24.5
62-69	3428	18.7
70-79	2420	13.2

Table-III : Pathological sequence of patients (n =18,334)

Path. Sequence	Number	%
Normal	11880	64.8
Abnormal	6453	35.2

Table-IV : Individual disease conditions (n = 6453)

Diseases	Number	%
HTN	2142	33.2
CHD	1697	26.3
Cardiac arrhythmias	90	1.4
Conduction defects	104	1.6
HF	84	1.3
DM	916	14.2
Chronic lung disease	497	7.7
HTN+DM	336	5.2
HTN+CHD	309	4.8
HTN+COPD	161	2.5
Others	116	1.8

Table-V : Varying degrees of HTN (n = 2142)

Stages	Number	%
Mild (<159/99mmHg)	587	27.4
Moderate (<160/109mmHg)	953	44.6
Severe (>180/110mmHg)	534	24.9
Malignant (>230/130mmHg)	68	3.17

Table-VI : Prevalence of CHD as detected by ECG (n = 1697)

Disease condition	Number	%
Ischaemic condition	1086	64
Ant Ischaemia	343	20.2
Inf Ischaemia	217	12.8
Ant-septal	243	14.3
Inf-lateral	283	16.7
Infarctions	611	36
AMI (Ant)	3	0.18
AMI (Inf)	2	0.12
OMI (Ant+Inf)	550	32.4
Others (Post)	56	3.3

Table-VII : Various types of cardiac arrhythmias &amp; blocks &amp; septal defects (n = 194)

Disease condition	Number	%
RBBB	48	24.74
LBBB	37	19.07
AF	24	12.37
PAC	20	10.3
PVC	21	10.82
10HB	20	10.3
20HB	17	8.76
CHB	2	1.03
VSD e IE	5	2.57

Table-VIII : Incidence of HF (n = 84)

Disease condition	Number	%
RHF (CCF)	25	29.76
LVF	46	54.76
BVF	9	10.71
HTN e LVF	2	2.38
Tight MS e CCF	2	2.38

Table-IX : Incidence of DM (n = 1255)

Disease condition	Number	%
Juvenile onset DM	260	20.71
Maturity onset DM	498	39.68
Hypoglycaemia	158	12.58
DM+HTN	336	26.77
DM+CRF	2	0.15
DM+KA	1	0.07



Fig : Ketoacidosis



Fig : Severe conjunctivitis, common in diabetes

Table-X : Incidence of various lung diseases (n = 662)

Disease condition	Number	%
Br. Asthma	163	24.62
COPD	264	39.87
P.T.	29	4.38
COPD e Active P.T.	2	0.38
Bronchiectasis	41	6.19
Ca-Bronchus	2	0.38
COPD + HTN	161	24.32



Fig : Clubbing

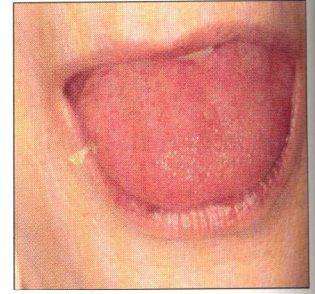


Fig : Cyanosis

Table-XI : Other clinical conditions (n = 116)

Disease condition	Number	%
PUO	20	17.24
EF	19	16.37
Malaria	17	14.65
Dengue	1	0.86
Filaria	1	0.86
Syphilis	3	2.58
Thyrotoxicosis	21	18.1
Hypothyroidism	34	29.31



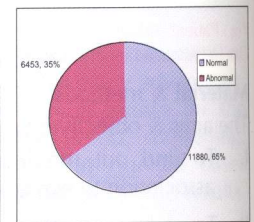
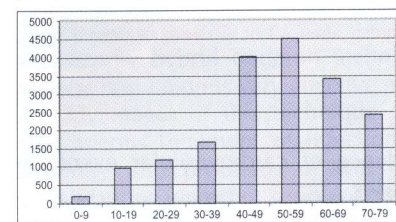
Fig : Argyll Robertson Pupil



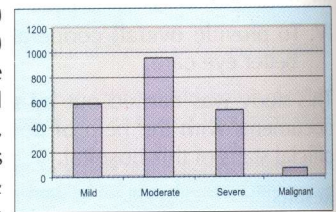
Fig : Thyrotoxicosis

## Discussion

Table I & II exhibits the gender & age distribution of patients. Out of total 18,334 patients maximum (4492 cases, 24.5%) were in the age group 50-59 years in which maximum cardiovascular accidents occur.



Patients were evaluated on clinical ground as well as by electrocardiographic examinations. In the study period we found 11,880 cases (64.8%) were normal & 6453 (35.2%) were abnormal. Among the pathological conditions HTN had headed the list (2142 cases, 33.2%). Second commonest were CHD (1697, 26.3%) & DM (916 cases 14.2%). Table V shows various categories of hypertensive patients (2142 cases). We managed almost all the cases except 7 which had been declared unfit for surgery. Those were HTN e AMI-3, HTN e CRF-2 & HTN e decompensated HF-2 cases. Single commonest cause of death in the modern world is CHD especially MI usually complicated by VT, VF or cardiac arrest.



In the last year we had managed 1697 cases of CHD (26.3%) which include both ischaemia, recent & old infarction patient except 08 where AMI- 05 & AMI e HTN- 03 cases. Table VII shows various types of cardiac arrhythmias & conduction defects (194 cases, 3%) Many of these conditions were associated e other cardiac & eye problems which were managed e adequate treatment except 2 who were symptomatic CHB required urgent pace maker implantation. The commonest endocrine & metabolic disorder is DM. 1255 cases of DM & hypoglycemia were managed in our department except 3 cases: uncontrolled DM e CRF - 2 & DM e Ketoacidosis- 1. Table X shows various types of lung diseases (10.2%) which were managed in the hospital & gained fitness from cardiovascular point of view except 4 where 2 were active P.T. & 2 - Ca bronchus. Table XI shows rest of some important medical problems including PUO, EF, Malaria, Dengue, Filariasis etc(116 cases, 1.8%). Almost all the cases

were managed here except 1 case of chronic advanced filariasis & 5 cases of VSD e IE. 21 cases of thyrotoxicosis e exophthalmos were diagnosed & managed here.

### Conclusion

All the treated cases were gained cardiovascular fitness. Side by side we have been providing full co-operation to ophthalmologist in parallel management for better eye care. Hence our expectation is: Healthy heart with healthy eyes for every person.

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## Health Tips

### Why We Need Zinc?

This mineral essential to body's healing system. Zinc is an important mineral found in almost every cell in the human body. The U.S. National Institutes of Health says that zinc stimulates the activity of approximately 100 enzymes, which are substances that promote biochemical reactions in your body. Zinc is found in lots of foods, and oysters contain more zinc per serving than any other. But if you can't get your hands on oysters or don't like them, there many alternatives. Red meat and poultry provide the majority of zinc in the diet. Other good food sources include beans, nuts, certain seafood, whole grains, fortified breakfast cereals and dairy products. Zinc absorption is greater from a diet high in animal protein than a diet rich in plant proteins.

### How to Live to Be 100

According to the journal *Nippon Ronen Igakkai Zasshi*, the Japanese Journal of Geriatrics, a study of 4,152 Japanese centenarians came up with these rules:

1. Eat lots of protein
2. Keep calories down
3. Get enough sleep
4. Live in an area with excellent medical facilities.

### Things to know : Brushing

1. Aim the bristles at a 45° angle, into the gum line  
Use small circular motions, keeping the tips of the bristles more or less in the same place.
2. Remove plaque from all outer surfaces of lower and upper teeth with small circular strokes.
3. Make sure you can feel the bristles at the gumline and between the teeth applying the same circular brushing action.
4. Use the long neck to remove plaque from behind the last molar.
5. Use a back-and-forth stroke to brush the biting surfaces on both upper and lower molars. Make sure you extend your brush to the last of your teeth (at the very back of your mouth).

Brush your teeth twice a day and replace your brush every 3 or 4 months.

### 5 Foods Should Eat Every Day

The wider the variety of the foods you eat, the better chance you have to get all the nutrients needed for good health. But there are some foods which should eat every day :

1. **Oranges (or orange juice):** A great source of folic acid, fiber, antioxidants beta-carotene and vitamin C, and anti-cancer compounds flavonoids and carotenoids. Drink fresh orange juice, eat fresh oranges for snacks, make fruit salad with oranges, toss peeled orange sections into a spinach salad.
2. **Dark Leafy Greens:** Full of anti-cancer compounds, vitamins and minerals. Contains folic acid to help prevent neural-tube birth defects, antioxidants beta-carotene and vitamin C, fiber, and anti-cancer compounds beta-carotene and lutein. Try spinach, collard greens, kale, turnip greens. Eat raw or lightly cooked.
3. **Bran Cereal (or other rich source of wheat bran):** Prevents constipation, is a potent anti-cancer agent, prevents polyps, may fight breast cancer by diminishing estrogen supplies.
4. **Yogurt (low fat, with live cultures) :** Supplies calcium to prevent osteoporosis, boosts immune function, fights bacteria, has anti-cancer properties, may prevent yeast infections.
5. **Soy:** Contains phyto-estrogens that may help relieve hot flashes and fight osteoporosis in postmenopausal women, anti-cancer activity may be antagonistic to breast cancer, source of high-quality protein.

### 5 Steps of Handling Burns

That's the term for a burn caused by contact with open flame, hot liquid, a hot surface, or other source of high heat. The Shriners Hospitals for Children suggests these steps:

1. Get the victim away from the heat source as quickly and safely as possible.
2. Cool the burn with cold water.
3. Cover the area with a sterile pad or clean sheet.
4. Maintain the person's body temperature and take the victim to the nearest medical facility.
5. Do not apply oils, sprays or ointments to a serious burn.

### Why Women Live Longer?

Women live longer than men in just about all parts of the globe. National Women's Health Information Center offers some contributing factors:

1. Men tend to smoke and drink more than women.
2. Men do not seek medical help as often as women.
3. Men tend to join in fearless, risky, dangerous behaviors more than women.
4. Men largely define themselves by their work, which adds to their stress and hampers their emotional side. This can cause problems in maintaining relationships and careers. [www.msn.com](http://www.msn.com)



# Hypertension: An easy and practical approach

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The ORION 2005 ; 21: 268-269

## Introduction

Hypertension is a common problem and defined as blood pressure above normal. Normal blood pressure varies from man to man and average normal blood pressure is 140/90 mmHg<sup>1,2,3</sup>.

While treating hypertensive patient physicians especially general practitioners, should keep few points in mind. First of all aim of treatment should be to treat the patient not hypertension<sup>4</sup>. As for example hypertension is usually benign in female patients. So they should be carefully evaluated if at all drug treatment is necessary. Their hypertension can be easily controlled by simply removal of precipitating factor and by non pharmacological means. On the other hand hypertension in male patients should be taken with great seriousness for they are vulnerable for ischemic heart disease. They usually need drug treatment from diagnosis.

Secondly physician must be very careful before declaring a patient hypertensive. For once a patient is labeled hypertensive he or she will remain hypertensive for ever. Same thing happens once a drug is started. It is suggested that at least three blood pressure readings should be taken before declaring a patient hypertensive after good sleep, rest, in recumbent position and in relax mood on three different days. At these situations if blood pressures are found raised only then a patient may be declared as hypertensive.

Thirdly raised diastolic blood pressure is more dangerous than raised systolic blood pressure. So raised diastolic blood pressure should be taken more seriously than raised systolic pressure. Fourthly selection of drug is very important that is what type of drug should be given to what type of patient. Lastly common causes should be thought first.

## Classification

The easiest and most practical classification of hypertension is mild, moderate and severe groups. Mild hypertension ranges from 140/90 mmHg to 159/99 mmHg, moderate from 160/100 to 179/109 and severe > 180/110 mmHg<sup>5</sup>.

There are some clinical conditions which are not truly hypertension but may produce significant trouble in making decision. Example is white coat hypertension.

## Causes

Hypertension may be primary (95%)<sup>1,2</sup> or secondary. Primary hypertension is also called essential hypertension and has no obvious detectable cause. Secondary hypertension usually has detectable causes among which renal, endocrine and drugs are common. Renal disorders cause about 90%<sup>1,2</sup> secondary hypertension and endocrine disorders only 2%<sup>6</sup>.

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## Risk factors

There are factors which can cause hypertension as well as aggravate its complications. High intake of dietary salt and fat, alcohol, sedentary life style, hyperlipidemia and obesity are the major factor.

## Investigations

As clinical features are minimum or absent investigations are of great help in finding causes and complications. Urine R/E, urea, creatinine, electrolyte, triglyceride, cholesterol, ECG and X-ray chest should be done routinely in all patients<sup>1</sup>. Random blood sugar may be done routinely in elderly patients. If clinical features and routine investigations suggest and no clue could be detected by routine investigation, some special investigations may be done like hormone assay, echocardiogram etc. but it is better left them for specialists.

## Management

Diagnosis of hypertension is very simple but managing a hypertensive patient is difficult. As mentioned earlier aim should be to treat the patient not hypertension. For this age, sex, marital status, socioeconomic condition, food habits etc. - all should be carefully evaluated. Hypertension in female patient is benign because they are low risk patient for IHD and usually mild (DBP 90-99 mmHg) and need no drug treatment. Non pharmacologic approach does well in such patients. Drug treatment may be started if diastolic blood pressure is raised moderately or severely (BP>100 mmHg) and non pharmacologic approach fails. On the other hand hypertension in male patient usually needs urgent attention for drug treatment. Family and drug history must be brought into account. If family history is positive for hypertension and its complications - drug treatment should be started after immediate evaluation. If patient found to take drugs that can cause hypertension simple withdrawal of that particular agent may alleviate the problem. Blood pressure should be tried to keep <140/90 mmHg and 130/80 mmHg for those with diabetes and chronic renal failure<sup>1,3</sup>.

Non pharmacological approach means lifestyle modification. Even if drugs are started, without lifestyle modification it becomes very difficult and sometimes impossible to control hypertension. Lifestyle modification includes (a) dietary restriction e.g. intake of low salt, fat and alcohol; (b) giving up of smoking, (c) exercise, (d) weight reduction. It can help in reducing high blood pressure as well as preventing life threatening complications like MI, LVF, stroke etc.

Drugs which are used in the treatment of hypertension are beta blockers, calcium channel blockers (CCB), diuretics, angiotensin converting enzyme (ACE) inhibitors, angiotensin II receptor blockers (ARB) and vasodilators. No group is superior to other<sup>1</sup>. Careful decision is necessary to choose the appropriate drug depending on cost, convenience, response to treatment and freedom from side effects. For example female, diabetic, asthmatic patients and those with heart failure and peripheral vascular disease it is better not to prescribe beta blockers. In females they can cause Raynaud's phenomenon like features, diabetic patients may have symptom less hypoglycaemia, asthmatics may have exaggerations and

compensated heart failure may become decompensate. On the other hand male patients are more prone to develop myocardial ischaemia and may be benefited if they are prescribed beta blockers. Though it may cause impotence it is reversible. Patients who develop LVF following long standing hypertension may be benefited from diuretic and ACE inhibitor or ARB. Thiazide type of diuretics is now being advocated for more use in patients with mild to moderate hypertension<sup>3</sup>. Careful investigations should be carried out to find out cause and complications. If hypertension is due to moderate to severe renal failure ACE inhibitor should be avoided and CCB may be used. Lipid lowering agent and aspirin may be used side by side as necessary.

It is also very important to keep in mind that patient will take the medicine lifelong. So for better compliance as minimum drugs as possible should be prescribed. It is suggested that a single drug<sup>4</sup> should be tried first after careful evaluation to its maximum dose or any side effect is evident before changing or combine a second drug.

Combination of anti hypertensive drugs must be appropriate<sup>1</sup>. Some drugs have synergistic effects while others do not. Combination of beta blocker or ACE inhibitor or ARB with thiazide diuretic and calcium channel blocker work synergistically. But combination of beta blocker with ACE inhibitor or ARB is not good. Combination of anti hypertensives may also impose extra burden of expenditure to patient in a poor country like ours.

Lot of newer drugs is now available. They are claimed to be superior to the older ones. This is actually not true. These drugs were developed for situations where older drugs failed to work

properly. They are also expensive. But they also have advantages like their half life is longer, may be given once daily which may improve compliance. But their safety is still under trial. One must not forget Rofecoxib which was the best pain killer drug of one time. Regular measuring of blood pressure is important and may be done<sup>3</sup> monthly<sup>1</sup> or even after longer interval. Monitoring of patients with investigations like ECG, urine R/E, triglyceride, cholesterol, urea, and creatinine should be done to detect complications as well as side effects of drugs at regular interval.

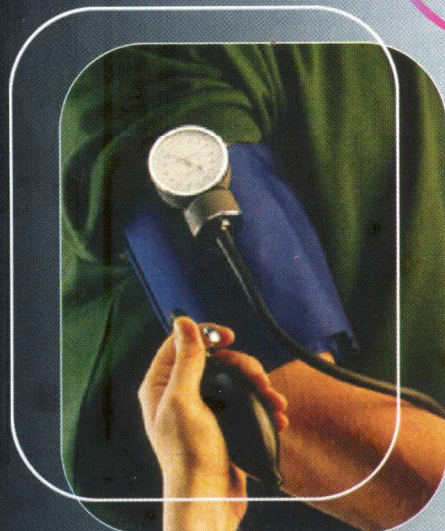
It is the physician who should find the best possible good decision to treat a patient and hence not hypertension looking to the interest of the patient.

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# Betacal

Atenolol BP 50 mg & Amlodipine BP 5 mg



**The best way to reduce hypertension**

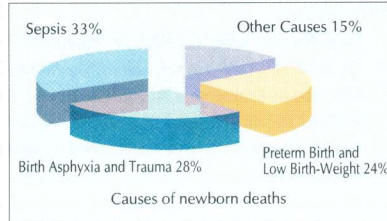
# Problems and management of pre-term, low birth weight babies

Chowdhury MAK A<sup>1</sup>

The ORION 2005 ; 21: 270-271

## Introduction

Babies born before 37 completed weeks of gestation are called pre-term (PT) and all babies born with weight of less than 2500 gms are called low birth weight (LBW) babies. According to the western centile chart this weight falls below the 10th centile at 37 completed weeks of gestation. This weight will fall at about the 40th centile in our chart (although we do not have a national chart) as about 40% of our newborns are below this weight at birth (incidence varies from 31% to 50% in various reports from the community & hospital studies)<sup>1,2,3,4,5</sup>. Pre-maturity and LBW along with its complications (asphyxia and sepsis) accounts for most of the neonatal deaths in our country<sup>6,7,8,9,10</sup>.



(source: Health Situation in the South-East Asian Region 1998-2000 WHO)

LBW per se is said to have 30 times more risk of death compared to normal weight babies<sup>7</sup>. LBW babies are again classified as "Very low birth weight" (VLBW) when the weight is below 1500 gms and "Extreme low birth weight" (ELBW) when weight is less than 1000 gms as the prognosis and outcome differ in these group. Majority of the LBW babies (about 65%)<sup>11</sup> are small for date (IUGR) babies with birth weight less than that expected for the gestational age. So, in our country majority of the babies born above 2.0 kg are term or near term regarding gestation and do very well without any special care i.e they feed well and grow well in the normal home environment with some parental support.

Some of the babies between 1500 to 2000 gms also do well at home with supervision and advice. Babies below 1500 to 1600 gms usually need special care, some with institutional support and those below 1300 gms mostly need institutional care for first few days of life. So, overall more than 50% of our LBW babies can be managed at home with some attention and advice.

The problems discussed below and their management are henceforth related mainly to the very low birth weight babies of our country. In the last trimester of gestation foetus attains full functional maturity of its organs along with storage of essential elements for initial post partum growth. This is the time when vital elements like sugar, calcium, phosphorus, iron and other nutrients & trace elements are pumped through the placenta into the foetus against their concentration gradients. When one newborn is deprived partly or wholly of this critical intra-uterine period one can imagine his/her situation in the extra-uterine environment.

## Major problems of pre-term, LBW babies

### Maintenance of body warmth-

Because of their immature skin, large head and body surface area, inadequate brown fat around the scapula & armpit, inability to shiver and curl, they easily get cold and body temperature may become subnormal when exposed to low environmental temperature.

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### In ability to suck and feed-

Because of poor sucking- swallowing reflexes and immaturity of the gut they cannot take and tolerate milk by mouth well.

### Susceptibility to hypoglycemia, hypocalcaemia-

Due to minimal liver glycogen storage and calcium, their blood level easily go to very low level sometimes causing fits. Problems with other elements like sodium, magnesium can also happen but they are much less common.

### Respiratory problems-

Because of lung immaturity and very low level of surfactant-the greasy layer between visceral and parietal pleura, the preterm, babies can not keep their alveoli inflated during expiration, many of whom collapse and become ineffective in gaseous exchange resulting in hypoxemia with increasing respiratory drives which is called respiratory distress syndrome (RDS). Fortunately this particular problem is less common in our country possibly due to stress and excess steroid in our mothers. The L.B.W babies are more prone to have asphyxia at birth<sup>12</sup> and also prolonged transient tachypnoea of newborn (TTN) due to slow clearance of alveolar fluid after birth. The ductus arteriosus which readily close at birth of term babies may remain open & contribute to tachypnoea and respiratory distress.

### Susceptibility of infection-

Because of their permeable skin, low level of transferred antibodies from mother, immature complement system, etc. these babies are easy pray to environmental pathogens and once infected their recovery is slow and very unpredictable with high mortality and unfortunately day by day resistant strains of organisms are affecting these babies in the hospital<sup>13</sup>.

### Hyperbilirubinaemia-

As the liver and its enzyme system is not fully developed in the pre-terms, there is exaggeration of the physiological jaundice and higher risk of kernicterus at comparatively lower level of serum bilirubin (like 15mg/dl) which is safer in term babies. If the hands and feet appear yellow, they should be immediately referred for treatment.

### Hematological problems-

In pre-term L.B.W babies, there may be excessive haemolysis in the early days of life and the immature bone marrow cannot cope with the increasing demand of a rapidly growing pre-term baby's so they become anaemic during first few days (early anaemia) and also after 2-3 weeks of birth (late anemia of prematurity).

### Osteopaenia (Rickets of prematurity)-

Because of less reserve and poor intake of calcium, phosphorus the growing bones of the pre-matures tend to become thin, brittle and manifest various grades of osteopaenia radiologically. Failure to make adequate supplementations of these minerals lead to growth failure and sometimes fractures<sup>14</sup>.

## Management of the pre-term, low birth weight babies entails addressing these problems :-

### Keeping warm-

The entire room of the babies should be kept warm with heater/warmer if possible. Our newborn nursery is always kept warm and an adult feels hot on entering the nursery. Tiny babies should be wrapped from head to toe with face exposed. If the

baby has respiratory distress and requires to monitor breathing, part of upper chest can be kept exposed covering the head with a cap/cloth. Baby's temperature should be felt from time to time if feels cold despite proper wrapping and warming of the environment-baby should be shifted to a hospital, where special warmings or incubator care is possible. At home and during referral these babies should be kept in skin to skin contact with the mother as long as possible.

#### Feeding-

Babies between 1.5 to 2.0 kg may be slow to suck & swallow but if tried repeatedly on breast and if necessary, with spoon or dropper for the first few days, then usually the baby starts adequate sucking by the end of the week. Babies below this weight and a few above 1.5 who fail to establish adequate sucking and/or swallowing will require naso-gastric tube feeding for sometime in a health centre or at home supervised by a health worker. When not feeding at liberty from the breast, the fluid / milk requirement per day is calculated as per kilogram of weight & gradually increased.



Fig -1 : LBW Baby with feeding tube

In initial 2 days 50-60 ml/kg/day then increased every 3<sup>rd</sup> day by 20 ml/kg/day reaching upto 150-160 ml/kg/day. Babies weight should be checked fortnightly or at least monthly to see the rate of growth. Every effort should be made to give the baby his / her mother's milk. Milk of the pre-term baby's mothers has the quality that suit the pre-term gut and its absorption capacity. It contains high medium chain triglycerides, lipases, etc. Besides, the growth factor in breast milk promote gut maturity. Only a few ml of breast milk per day (trophic feeding) helps gut maturity. Mother's milk also improves host defences and intelligence when compared to formula fed infants<sup>15,16</sup>.

Mothers of pre-term babies require special lactation support. As the maternal milk volume is directly proportional to the frequency of stimulation and degree of emptying-mothers should be encouraged to put the baby frequently on breast even if milk expression is almost nil. They should empty their breast with clean hand until the baby can suck & empty himself.

#### Avoiding infection-

This is very crucial for the survival of the baby. Every clothing should be as clean & dry as possible. Hands should be kept always clean, preferably sterile with hexisol or spirit before handling the baby. The nails must be kept very short and only one or two persons should handle the baby with possible minimal handling. Vigilance should be there to identify any sign / symptoms of possible infection and if identified help of nearest health care provider should be sought without delay.



Fig -2 : Extreme LBW

Some of sign/ symptoms are -

- Sudden lethargy with poor sucking & poor activity then before
- Excessive sleepiness or irritability
- Raised to low body temperature.
- Sudden increase of jaundice.
- Excess vomiting diarrhoea
- Abdominal distension etc.

Advising parents and guardians at home, supervising the babies at some regular intervals during the first few days and making quick referrals, when needed, at an appropriate centre can significantly reduce the morbidity and mortality of our newborns specially the pre-term low birth weight ones<sup>17</sup>.

#### Prevention

Incidence of LBW babies are less in healthy, well-nourished, educated mothers and also in mothers who are not very young. So discouraging early marriage and child bearing, improving maternal health, nutrition, education and regular ante-natal check-up during pregnancy will decrease the high incidence of pre-maturity and low birth weight babies in our country.

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# Frequently asked questions on Zinc as a treatment of diarrhea in young children

Larson CP<sup>1</sup>, Blum LS<sup>2</sup>, Akhtar N<sup>3</sup>, Khan AI<sup>4</sup>

The ORION 2005 ; 21: 272-273

## Can the zinc tablet be taken by chewing or sucking?

Chewing or sucking is not the recommended mode of delivery. Preferably it should be dissolved in water and then administered to the child as a syrup. This will better ensure that the child takes the full dose.

## Should a child be given another course of zinc treatment if he/she experiences a second episode of diarrhea?

Yes, all episodes of diarrhea should be treated with zinc. Even if a child has recently completed a full course of zinc treatment it is still safe to give.

## Can a mother who is breast-feeding take zinc instead of her child?

No. While it is true that if the breastfeeding mother takes zinc some of it will pass in the breast milk, it is not sufficient to treat a child suffering from diarrhea. To ensure that a child receives an adequate dose, it is important to administer zinc directly to the child.

## Will zinc work for children above five years of age as well as it does for children under five years of age?

Probably it would. However, there is no scientific evidence demonstrating the effectiveness of zinc as a treatment for diarrhea in children over five years of age. In addition older children are less susceptible to the more severe effects of diarrhea, so they may not benefit to the same degree.

## Can we give zinc to a healthy child for prevention of diarrhea?

Yes. Daily zinc supplements given to a zinc deficient child will lessen the likelihood of an acute episode of diarrhea and its severity. Typically, it is given at a lower, 10 mg per day dose.

## Does zinc work similarly to a vaccine for diarrhea?

No, vaccines target specific pathogens causing diarrhea, while zinc is a more general remedy for all types of infectious diarrhea.

## Are there any side effects of zinc?

At the dose being provided in this tablet, there is an increased chance of transient vomiting. If the child is vomiting, we recommend settling the child first before administering zinc.

## Can zinc be given with other medications?

Yes, zinc can be given with other medications.

## Can zinc be given by mixing it with food?

No, zinc should not be mixed with food because it will be more difficult for the caretaker to know how much zinc was actually taken.

## Can zinc be given by mixing it with juice, ORS, breast milk or any other liquids?

The zinc tablet is meant to be dissolved in water. However, a spoonful of ORS or breast milk can replace a spoonful water. Other fluids are not recommended.

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## Can the zinc tablet be given to a child without consulting a doctor?

Yes, it is not necessary to consult a doctor to give zinc. Zinc should be given to any child with diarrhea regardless of the type of diarrhea. For children who exhibit severe symptoms such as vomiting or dehydration, it is important to consult a health care provider first.

## What time of the day should zinc be given to a child?

Zinc should be given once a day at any time. However, we recommend giving the tablet at the same time everyday in order to facilitate correct adherence to treatment instructions.

## Can zinc be given to a child with an empty or full stomach?

Zinc can be given on an empty or full stomach, however during the early phase of the illness it is not recommended to give zinc immediately following a feed.

## Can zinc be given to infants and newborns?

The current recommendation is to give zinc treatment to children 2 months to 5 years of age. There is no scientific evidence demonstrating the effectiveness of zinc as a treatment for diarrhea in children under two months of age.

## Does the zinc dose vary according to the weight of the child?

The zinc treatment is given according to age, not weight. Irrespective of the child's weight the recommended dose of zinc is:

- 2 months up to 6 months: 10 mg zinc once daily for 10 consecutive days
- 7 months to 5 years: 20 mg zinc once daily for 10 consecutive days

## At what stage of the diarrheal episode should zinc be administered?

The earlier that zinc is administered, the sooner the child will benefit. However, it can be started at any time in the illness.

## How does zinc work in diarrhea?

It is clear that zinc is vital for a wide range of biological functions. In diarrhea we have come to know that zinc helps in the following ways:

1. Boosts up the immune system
2. Helps in healing the intestinal lining
3. Improves absorption of fluids

## Can zinc be given to increase the appetite of children?

The zinc tablet formation is not intended to be used to increase appetite. Other forms of zinc such as lower dose syrups have been used to increase appetite, with anecdotal reports of success.

## Can zinc be given if diarrhea is due to bottle-feeding or for powder milk?

Zinc can be given for any presumed infectious episode of diarrhea. Bottle-feeding should be discouraged.

## Can zinc be given if a child is vomiting?

When a child has vomiting with diarrhea, wait for the child to settle before giving zinc. If the child vomits repeatedly, withhold zinc for that day and start from the next day.

## What are the ingredients of the zinc tablet?

The ingredients in the zinc tablet formulation include zinc sulphate, glucose and vanilla flavouring.

**Can zinc be given to adults?**

Zinc can be given to anybody, but WHO/UNICEF recommendations are limited to children under five years of age.

**How many days are required for zinc to cure a child from diarrhea?**

The disappearance of diarrhea does not mean that the child no longer requires zinc. For the full benefit of the zinc treatment, which includes both treatment and prevention, zinc should be given for 10 days.

**Can diarrhea be treated with zinc only?**

Acute childhood diarrhea should be treated with ORS and zinc. In children with bloody diarrhea or suspected cholera an antibiotic may also be required.

**Can zinc be given for more than 10 days?**

In Bangladesh, the treatment recommendation is for 10 days. In other part of the world, zinc treatment is for anywhere between 10 and 15 days. There is no proven benefit beyond 15 days of treatment.

**Why is the zinc tablet formulation being recommended, given zinc syrups are already available on the market?**

Zinc tablets are preferred over syrup for the following reasons: Easier distribution and storage

- Lower cost
- Easier for caretakers to administer properly as well as count the medication period
- Longer shelf-life

**Between zinc and ORS which one should be given first?**

During diarrhea ORS should be given first and followed by zinc.

**Should a child with severe dehydration be given zinc?**

Usually children with severe dehydration are given intravenous fluids first. After the intravenous fluid is stopped, ORS should be started and zinc should be given along with it.

**What should be done if the child vomits after giving zinc tablets?**

If the child vomits after giving zinc wait for one hour. If there is no further vomiting give the child another dose of zinc.

**Can zinc be given to an exclusively breast-fed child?**

Yes, to treat diarrhea zinc can be given to an exclusively breast fed child.

**Can a child be given zinc syrup instead of the zinc tablet formation?**

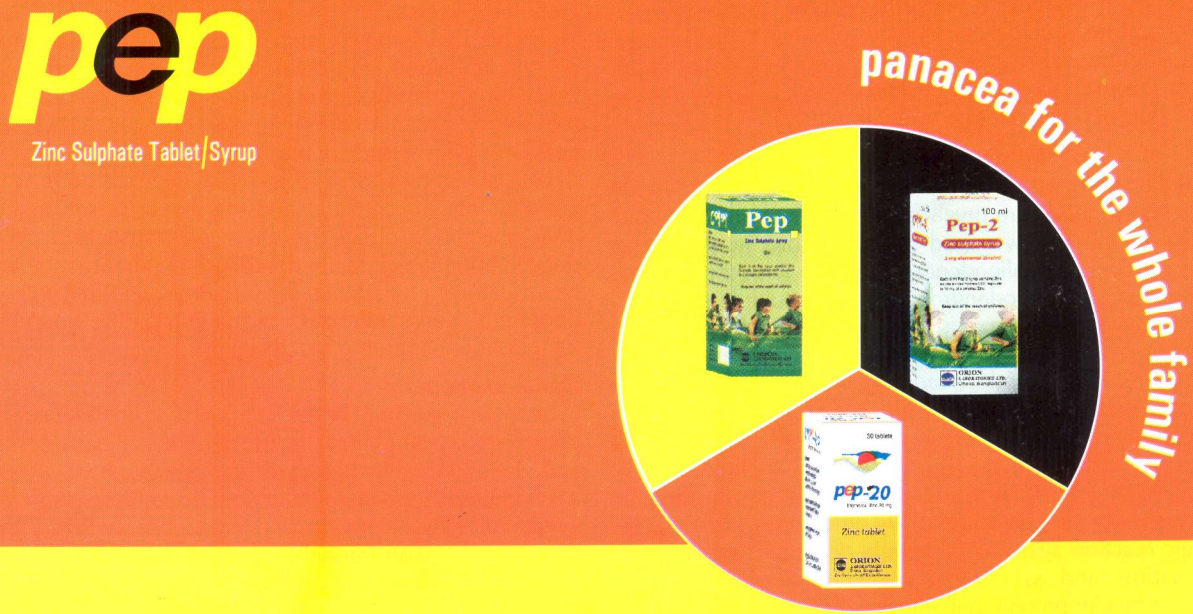
Yes, zinc syrup can be given instead of the tablets. With the syrup it will be important to verify the correct amount and dose.

**What should be done if the child misses a zinc dose?**

Zinc tablet should be given to the child when s/he can remember. If s/he can remember on the next day, the dose of that day only is to be given. Give the zinc the next day and continue for the full 10 days of zinc. If a day is missed/forgotten, then give the zinc the following day and continue for 10 full days of zinc treatment.

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# Management of peripheral neuropathies : An update

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## Introduction

Peripheral neuropathy is common in clinical practice but its prevalence is still uncertain. Problems involving the peripheral nerves or root represent at least 30% of new patients in a general neurology outpatient clinic in the UK<sup>1</sup>. Worldwide, the most common cause of peripheral nerve disease is diabetes and the commonest treatable cause is leprosy<sup>1,2</sup>. Diabetes as well as alcoholic neuropathies are commonest in the USA<sup>2</sup>. Many physicians have a pessimistic approach to the diagnosis and management of patients with peripheral nerve disease, but the advent of new treatments and a greater understanding of pathogenesis is beginning to change opinion. Peripheral neuropathies are caused by deranged function and structure of peripheral motor, sensory, and autonomic neurons. The main causes of neuropathy are entrapment, leprosy, diabetes, and other systemic diseases; inherited disorders; inflammatory demyelinating, ischemic, paraneoplastic conditions; deficiency states; and toxins<sup>3-7</sup>. A logical systematic diagnostic approach consists of a careful history, physical examination, and electrophysiological studies, which not only confirm the presence of a peripheral nerve disorder but also may shorten the list of diagnostic possibilities. Further laboratory studies are often performed based on the outcome of the initial evaluation to arrive at a specific diagnosis. It is possible to establish a specific diagnosis in up to 75 % of patients evaluated in tertiary referral centers by experts in neuromuscular disorders<sup>7</sup>.

## Arrangement of peripheral nervous system

The peripheral nervous system includes all neuronal structures lying outside the pial membrane of the spinal cord and brain stem with the exception of optic nerves and olfactory bulbs, which are but special expansion of the brain<sup>8,9</sup>.

## Structure of peripheral nerve

Axon thicker than one micron in the CNS and peripheral nervous system (PNS) are myelinated. Myelin is a spiral sheet of plasma membrane wrapped around axon. In the CNS, myelin is produced by oligodendroglial cells & in the PNS by schwann cells. Each oligodendrocyte makes multiple segments of myelin that wrap many axons. Each schwann cell makes one segment of myelin. This is one reason why peripheral myelin regenerates more efficiently. Nodes of Ranvier are points of discontinuity between adjacent myelin sheath in which axon is not covered by myelin. The structure of central and peripheral myelin is the same. Myelin is composed of 70% lipid & 30% protein. There are some important differences in myelin proteins between CNS and PNS. These differences explain why an allergic reaction against PNS myelin does not cause central demyelination and vice versa; and inherited metabolic disorders of myelin protein that affects peripheral nerves do not damage central myelin. On the other hand lipid are similar between CNS and PNS myelin. For this reason, metabolic disorders of lipid, such as metachromatic leukodystrophy, affect both, the central white matter and peripheral nerves.

## A typical spinal nerve contains motor, sensory and autonomic fibres

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## Types of Nerve Fibre:

Type A - Myelinated, Diameter -2-20 $\mu$ , NCV 10-70 m/sec  
Function - motor, vibration & proprioception  
Type B - Thinly myelinated, Diameter - 3 $\mu$ , NCV 5-7 m/sec  
Function - preganglionic auto, pain & temp.  
Type C - Unmyelinated, Diameter - <1 $\mu$ , NCV <2 m/sec  
Function - pain & temperature.

## Pathological Pattern of Neuropathy

Damage may occur to -

- Axon
- Myelin sheath
- Cell body
- Supportive connective tissue &
- Nutrient blood supply to nerves

## The pathology of peripheral neuropathy follows 3 basic patterns

- Wallerian Degeneration
- Distal Axonopathy
- Segmental Demyelination

## Wallerian degeneration

The neuronal cell body maintains the axon through the axoplasmic flow. When the axon is transected, its distal part, including its myelin sheath, undergoes a series of changes leading to its complete structural disintegration and chemical degradation. This process is called Wallerian degeneration. The neuronal body of the transected axon enlarges. Nissl granules disperse, and the nucleus is displaced peripherally. This cellular change which is called central chromatolysis reflects activation of protein synthesis in order to regenerate the axon. Cytoskeletal proteins and other materials flow down the axon. The proximal stump elongates @1-3 mm/day. Schwann cells distal to the transection also proliferate. The degree of regeneration and recovery depends on how well the cut ends are put together and the extent of soft tissue injury and scarring around the area of transaction. Wallerian degeneration was initially described in experimental anatomy. Neuropathies characterized by trauma, cooling, infarction of peripheral nerve (diabetic mononeuropathy, vasculitis) and neoplastic infiltration are of this type.

## Distal axonopathy

When the neuronal body is injured from whatever cause, pathology develops first in the most distal parts of the axon and, the abnormality persists, the axon "dies back". This causes a characteristic distal ("stocking-gloves") sensory loss and weakness. Neurofilaments and organelles accumulate in the degenerating axon (probably due to stagnation of axoplasmic flow). Eventually the axon become atrophic and breakdown. Severe distal axonopathy resembles Wallerian degeneration. At the advanced stage, there is loss of myelinated axons. Distal axonopathy involves more severely large axons that have the highest metabolic and nutritional demands. Many clinically important neuropathies caused by drugs, and industrial poisons such as pesticides, acrylamide, organic phosphates, and industrial solvents are characterized by distal axonopathy.

## Segmental demyelination

Initially described in experimental lead poisoning, is breakdown and loss of myelin over a few segments. The axon remains intact

and there is no change in neuronal body. Segmental demyelination causes loss of saltatory conduction. Recovery, due to remyelination, is faster and more complete than Wallerian degeneration. Remyelinating axons have thin myelin sheath. Neuropathies characterized by segmental demyelination include Guillain-Barre syndrome (GBS), Chronic inflammatory demyelinating polyneuropathy (CIDP), diphtheritic neuropathy, metachromatic leukodystrophy and Charcot-Marie-Tooth disease. "Onion-bulb" formations are concentric layers of Schwann cell processes and collagen around an axon. This proliferation is caused by repetitive segmental demyelination and regeneration of myelin and cause gross thickening of peripheral nerves (hypertrophic neuropathy). The central axon is often demyelinated or has thin layer of myelin. Onion-bulb formations are the histological hallmark of Charcot-Marie-Tooth disease, but also seen in other hereditary neuropathies (Dejerine-Sottas disease, Refsum disease), Diabetic neuropathy and in CIDP.

**Neuropathies can be classified on the basis of their pathological changes into**

- I. Axonal (Wallerian degeneration & distal axonopathy),
- II. Demyelinative and
- III. Mixed.

#### Clinical Types of Peripheral Neuropathies

1. Radiculopathy
2. Plexopathy
3. Mononeuropathy
4. Mononeuritis multiplex
5. Polyneuropathy

#### 1. Causes of Radiculopathies

- Traumatic
- Disc degeneration & spondylosis
- Diabetic polyradiculopathy
- Neoplastic polyradiculopathy
- HIV polyradiculopathy
- Tabes dorsalis
- Lyme radiculopathy
- Herpes Zoster
- GBS
- CIDP

#### 2. Causes of plexopathy

##### I. Brachial plexopathy-

- Traumatic
- Neurogenic TOS
- Metastatic
- Radiation
- Idiopathic

##### II. Lumbosacral plexopathy-

- Hematoma
- Abscess
- Aneurysm
- Trauma
- Pregnancy
- Neoplasm
- Radiation
- Vasculitis
- Idiopathic

#### 3. Causes of Mononeuropathy

- Entrapment neuropathy & pressure palsy
- Leprosy
- Diabetes Mellitus
- Trauma

#### 4. Causes of Mononeuritis Multiplex

(Vasculopathy of vasa nervosum or infiltration of nerves)

- Diabetes Mellitus
- Leprosy
- Polyarteritis nodosa
- Rheumatoid arthritis

#### 5. Causes of Polyneuropathy

##### a. Causes of demyelinating neuropathy-

1. Acute- Guillain-Barre syndrome
2. Chronic
  - Hereditary- Hereditary motor sensory polyneuropathy (HMSN) type I and III, Metachromatic leukodystrophy
  - Paraproteinaemia-Myeloma, Waldenstrom's macroglobulinaemia
  - Drugs- Amiodarone, Perhexiline
  - CIDP

##### b. Causes of axonal neuropathy-

1. Acute- Toxins, Porphyria, Vasculitic disease (e.g. SLE, PAN)
2. Chronic
  - Metabolic- Diabetes, Uraemia
  - Deficiencies- B<sub>12</sub>, Thiamine, Vit. E, Nicotinamide
  - Toxic-Alcohol, Drug
  - Paraneoplastic- Lymphoma, Ca lung, Paraproteinaemias
  - Autoimmune diseases
  - Hereditary- HMSN type II, Giant axonal neuropathy, Hereditary ataxias
  - Miscellaneous- Chronic obstructive airways disease, Primary amyloid, Sarcoid
  - Leprosy
  - Undetermined

#### Causes of polyneuropathy according to clinical type-

##### Predominantly sensory-

- Diabetes
- Thiamine deficiency
- Malignancy
- Leprosy
- Hereditary sensory neuropathies
- Amyloid
- Uraemia

##### Predominantly motor-

- GBS
- Porphyria
- Diphtheria
- Botulism
- Lead
- Charcot-Marie-Tooth disease

#### Approach for the Investigation of peripheral Neuropathy

The goal of the investigation of peripheral neuropathy is to

1. Establish the diagnosis of peripheral neuropathy,
2. Determine if it is axonal or demyelinating process, and
3. Find its cause.

Clinically, Neuropathy cause weakness and atrophy of muscles, loss of sensation or altered sensation (paraesthesia) and weak or absent tendon reflexes. NCV can distinguish demyelinating neuropathy (slowing velocity & conduction block) from axonal neuropathy (low action potential amplitudes). EMG can distinguish denervation atrophy from primary muscle disease. Careful history taking with attention to family history, environmental exposure, and systemic illness, combined with neurological examination and laboratory studies can determine the etiology in most of the cases. When diagnosis is in doubt, sural nerve biopsy studies by light microscopy, electron microscopy, morphometry, and teased fibre preparations can give more definitive information. Nerve biopsy should be the last resort<sup>10</sup>.

#### Management of neuropathy

The most appropriate management of neuropathy is to reverse the aetiological factor leading to that neuropathy. This gives the best chance of recovery, but may be impossible. If specific treatment is impossible (e.g. vitamin B<sub>12</sub> replacement, immunosuppressive agents) management is aimed at preventing decline in function. Occupational therapy is useful in maintaining full use of weak muscles, and physiotherapy helps to stimulate recovery and maximum gain of function. Genetically inherited disorders are often associated with foot deformity, requiring attention to footwear and appropriate orthotic aids. Sensory neuropathies, which lead to loss of sensation in the feet, also require attention to footwear to avoid further nerve damage and disability<sup>10</sup>.

#### Prognosis

Recovery from peripheral neuropathy is usually slow. Depending on aetiology patient may fully, partially recovered or patient may develop chronic muscular atrophy if severely affected.

#### Rehabilitation

Rehabilitation is required for chronic disabled patients. The patient should be rehabilitated in his occupation, in his family, and in the society. Social and government active co-operation is needed for training and providing a suitable job so that they can

## Some Important Neuropathies:

### 1. Bell's Palsy

The diagnosis of idiopathic facial nerve palsy (Bell's palsy) is not difficult in a setting of lower motor neuron type of facial palsy in one side. Randomized controlled trials have shown that aciclovir alone is not as effective as corticosteroids in the treatment of Bell's palsy, but the combination of aciclovir and prednisolone appears to be more effective than steroids alone<sup>11,12</sup>.

### 2. Carpal Tunnel Syndrome

Commonest of all entrapment neuropathies. Supportive therapy i. e. control of precipitating factors and if needed decompression of carpal tunnel gives excellent result if done in time.

### 3. Diabetic Neuropathy

- Commonest of all neuropathy
- 7.5% of all diabetics at diagnosis.
- Common etiologic mechanism based on chronic hyperglycemia.
- Pathophysiologic basis leading to peripheral neuropathy is not fully understood.

### Multiple hypothesis have been advanced<sup>13</sup>.

- Metabolic theory
- Vascular theory
- Altered neurotropic support theory
- Laminin theory
- Autoimmune theory

### Metabolic theory

This theory proposes that hyperglycemia causes increased level of intracellular glucose in nerves, leading to saturation of the normally used glycolytic pathway. The extra glucose is shunted into the Polyol pathway and converted to sorbitol & fructose by the enzyme aldose reductase and sorbitol dehydrogenase. Accumulation of sorbitol and fructose leads to reduced nerve myoinositol, decreased membrane Na<sup>+</sup>/K<sup>+</sup> ATPase and impaired axonal transport and structural breakdown of the nerve, causing slowing of conduction velocities. This describes how aldose reductase inhibitor seems to work to improve nerve conduction.

### Vascular (ischemic-hypoxic) theory

According to this theory, endoneurial ischemia develops because of endoneurial vascular resistance to hyperglycemic blood. Various metabolic factor, including formation of advanced glycosylation end products. Also have been implicated, leading to capillary damage, inhibition of axonal transport, Na<sup>+</sup>/K<sup>+</sup> ATPase activity, and finally to axonal degeneration.

### Altered neurotropic support theory

Neurotropic factors are important in the maintenance, development and regeneration of responsive elements of the nervous system. Nerve growth factor (NGF) is the best studied. This protein promotes survival of sympathetic, and small fibre neural crest-derived factors in the PNS. Antioxidants are used to enhance the effect of NGF.

### Laminin theory

Laminin is a large glycoprotein composed of a large alpha chain and 2 smaller beta chains, beta 1 and beta 2. Laminin promotes neurite extension by cultured neurons. Lack of normal expression of laminin beta 2 gene may contribute to the pathogenesis of diabetic neuropathy.

### Autoimmune theory

Autoimmune neuropathy can emerge from immunogenic alteration of the endothelial capillary cells. This also hold true on the basis of reported success of using IVIG to treat diabetic neuropathy.

### 4. Guillain-barre syndrome

This acute postinfectious polyneuropathy characteristically occurs 1-3 weeks after a viral or other infections or immunization. Its incidence is 2/100000 population/yr. Peripheral nerve myelins are

involved by both antibody and cell mediated reactions. Segmental demyelination results with secondary axonal damage if the process is severe. CSF protein is elevated and NCV shows slowing of motor conduction, conduction block and prolonged distal latencies. Both NCV and CSF protein may be normal early in the illness until second week. Steroid is not effective but plasmapheresis or, IVIG are equally effective<sup>7,9</sup>.

**5. Chronic inflammatory demyelinating polyneuropathy (CIDP)**  
3% of all neuropathies. Similar to GBS with a progressive to fluctuating course over weeks to months and rarely involving cranial nerves and respiratory muscles. Segmental demyelination with remyelination (onion bulb formation) and sparse mononuclear cells infiltration occurs in nerves. Conduction velocity diminished to 70% of normal with conduction block and prolonged distal latencies. CSF protein is also elevated. Immunosuppressive therapy, plasmapheresis or IVIG are effective<sup>7,9</sup>.

### 6. Multifocal motor neuropathy with conduction block

This presents with asymmetric LMN weakness and may be mistaken for MND. NCV shows conduction block at sites distant from possible entrapment. Antibodies to gangliosides (Anti GM<sub>1</sub>) are found in serum. Immunosuppressive therapy or IVIG when indicated results in clinical improvement<sup>5,9</sup>.

### 7. Hereditary motor sensory polyneuropathy (HMSN/CMT disease)

A heterogeneous group of disorders with a prevalence of 1 : 2500- the largest category of genetic neurological disease. The characteristic appearance is that of distal wasting. The lower limb have an inverted with bottle appearance. The demonstration of genetic markers and the application of nerve conduction studies allows early and correct diagnosis. Nerve biopsy is of no diagnostic value. Treatment is symptomatic with provision appropriate footwear, splints or orthopaedics to maintain mobility. In adult onset disease the rate of progression is exceedingly slow<sup>7,9</sup>.

### Conclusion

Peripheral neuropathy is a common neurological problem. 1/3<sup>rd</sup> of neurology out patient department are of this type as reported from a developed country like UK. So awareness should be created among the general physicians and public for its early diagnosis and treatment to prevent long term neurological complications.

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# Menopause & hormone replacement therapy

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Reproductive age of women starts and ends with two distinct events, menarche i.e. starting of menstruation and menopause i.e. complete cessation of menstruation. These two events are universal and associated with social, medical and demographic significance. At menarche a girl is magnified to her womanhood while at menopause a complete woman feels inferior as she feels that one of her qualities of womanhood has disappeared, so she may be neglected in her family. In addition to this psychological upset, women also experience very distressing physical problems which result from acute decline of ovarian production of estrogen, the "Estrogen Withdrawal Syndrome". With the increase in life expectancy, about one-third of a woman's life is now spent in the post-menopausal era. So this crucial part of the life of women needs sympathetic and scientific approach.

Natural menopause is recognized retrospectively after 12 consecutive months of amenorrhea when there is no other obvious pathological and physiological cause. The endocrine activity of the ovary is the production of estrogens and progesterone which is ceased in menopause. Deficiency of the female hormones particularly estrogen has a profound effect on the quality of the health of the menopausal women. The sequelae of ovarian failure in menopause may be divided into short-term and long-term<sup>1</sup>.

The short term sequelae are

Vasomotor symptoms

- Hot flushes
- Night sweats
- Palpitation
- Insomnia
- Headache

Mood disorders

- Depression
- Anxiety
- Irritability
- Mood swings
- Lethargy, etc.

Urogenital

- Vaginal dryness
- Dyspareunia
- Urethral syndrome

The long-term sequelae are

- Osteoporosis
- Cardiovascular disease

In Bangladesh a study at the 'Thana, Union & Village level' showed that 65% of the postmenopausal women found to have burning sensation of limbs, vertigo and headache. 44.2% had complained of insomnia<sup>2</sup>.

As most of these distressing symptoms are attributed to estrogen deficiency, Hormone Replacement therapy (HRT) i.e. replacement of these hormones particularly estrogen appears as the solution in most cases. Estrogen is indeed the closest thing in modern medicine to an elixir of youth-a drug that slows the ravages of time for women.

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The era of effective estrogen therapy began with the crystallization and identification of oestradiol by a co-worker of Ernst Schering. In 1934 Schering started marketing of orally active steroid, Ethinyl oestradiol<sup>3</sup>. In 1966 American gynaecologist Mr. Robert A. Wilson in the book 'Feminine Forever' gave the exciting notes. He wrote 'for the first time in history of woman may share the promise of tomorrow as biological equals of men...'. Thanks to HRT, they look forward to prolonged well-being and extended youth<sup>4</sup>.

Hormones that are used in HRT are estrogen, key part and active component to control the menopausal symptoms and progestogens which are normally used in combination with estrogen to prevent the unopposed influence of oestrogen on body particularly on endometrium of uterus, where it can cause endometrial carcinoma.

Estrogen preparations that are available are of two forms :

*Synthetic estrogens*

like ethinyl oestradiol, mestranol. These are largely replaced by natural oestrogens because of their greater metabolic impact.

*Natural estrogens*

These are of three types. Oestradiol, Oestrone and Oestriol.

Natural estrogens are chemically synthesized from Soya Beans or yams. Conjugated equine oestrogens are also considered as natural where 50-65% is oestrone and rest is derived from oestrogens.

In Estrogen-Progestogen combination of HRT, progesterone preparations are usually synthetic and used to reduce the risk of endometrial hyperplasia and malignancy.

HRT preparations that are available can be divided into two general categories.

**Oral preparations**

Estrogen only, Estrogen-Progesterone combination & Tibolone.

**Parenteral preparation**

**Transdermal**

Two transdermal systems are available -patch and jell. These are self adhesive and consist of mainly oestradiol which delivers this hormone over a period of 3-4 days.

**Subcutaneous implants**

These are pellets of fused, crystalline oestradiol, needs surgical procedure to implant, release the hormone over a period of 4-8 months.

**Vaginal & nasal preparation**

Estrogen and progesterone are also absorbed through vaginal and nasal mucosa leading to the development of vaginal rings and nasal sprays.

**Creams or jells**

Estrogen are also available for topical use to prevent atrophic vaginitis and dyspareunia.

The benefits of HRT for the relief of acute climacteric symptoms are well recognized. Unopposed estrogen may be effective for reducing the awaking episodes that are associated with sleep disruption. The vasomotor symptoms of menopause like hot flushes, night sweats, headache and palpitations are readily

treatable by small dose of estrogen, whatever is the route of administration. But to alleviate the psychological complaints associated with menopause like depression, anxiety, loss of energy, loss of libido and irritability, the role of HRT is not well established.

Osteoporosis is a systemic skeletal disease characterized by low bone mass and micro-architectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture. Postmenopausal osteoporosis is a major public health problem. Estrogen deficiency is a key factor in the pathogenesis of postmenopausal osteoporosis. Among the several types therapeutic intervention in osteoporosis, HRT is considered as the gold standard for preventing post-menopausal osteoporotic fractures. However oestrogenic effect on bone is dose-dependent. For oral therapy, studies have demonstrated that doses of 0.625 mg of conjugated equine oestrogen and 2 mg of micronised oestradiol prevent postmenopausal bone loss. Percutaneous 17 beta-estradiol prevents skeletal bone loss as effectively as oral HRT. Although the greatest benefits from HRT in terms of bone sparing effects can be obtained shortly after the menopause, evidence showed that HRT prevents bone loss in all stages of postmenopausal life. However, estrogen therapy must be long-term, possibly lifelong, to have any lasting impact on bone health<sup>5</sup>.

A study to investigate the effect of conventional and high doses of estrogen and bisphosphonates or SERMs on the degree of mineralization of bone (DMB) was carried out in France. Study showed that estrogen therapy was associated with an increased degree of mineralization of bone induced by a secondary mineralization, similar to that observed with other antiresorptive agents. However, this increase was about two-fold lower than that observed after alendronate therapy (10 mg/day/3 years)<sup>6</sup>.

The women's Health Initiative study (WHI) showed of reduction of colo-rectal cancer among HRT users from 16 to 10 cases<sup>7</sup>.

However the most spectacular findings of HRT use of this century was regarding its effect on cardio-vascular system. For many years it was believed that estrogen replacement after menopause gives protection from cardio-vascular disease by reducing low-density lipoprotein (LDL) and increasing high-density lipoprotein (HDL). The large trial 'Heart and Estrogen Replacement Study (HERS)' compared the effects of combination of the hormones estrogen and progesterone against a placebo in 2,763 women with heart disease. At the end of five years, there were no differences in heart attack rates between the two groups. What's more, hormone therapy appeared to increase the rate of cardio-vascular problems during the first year of use<sup>8</sup>. HERS II trial, a follow up study of HERS I, also confirmed the initial findings of HERS I trial, the report of which was published in the July 2002 issue of the Journal of the American Medical Association (JAMA).

The main risk to the use of HRT is development of breast cancer. Numerous studies and meta-analyses have shown that HRT increases the risk of developing breast cancer, estimated to be 2.3% for each year of use. The key findings of the Women's Health Initiative study (WHI) after five years in 10,000 women breast cancer was found to be increased from 30 to 38 cases (did not appear in the first four years of use). A Danish cohort study using longitudinal data from the population-based prescription database of the country of north Jutland, Denmark, and the Danish Cancer registry, was done to find the risk of developing breast cancer in relation to HRT in a

cohort of 78,380 women aged 40-67 years from 1989 to 2002. A total of 1462 cases of breast cancer were identified during a mean follow-up of 10 years. Use of HRT did not increase the risk of breast cancer in women aged 40-49 years. Restricting the cohort to 48,812 women aged 50 years or more at entry, of whom 15,631 were HRT user, an increased risk of breast cancer was found associated with current use of HRT (relative risk 1.61, 65% confidence interval 1.38-1.88). The risk increased with increasing duration of use and decreased with time since last HRT prescription, reaching unity after 5 years. No material risk difference was observed among the various HRT-regimens. This population-based cohort study provides further confirmation that HRT increases the risk of developing breast cancer in women aged 50 years or more<sup>9</sup>.

So HRT is not recommended for routine use in menopause. It should be used for as short a time as possible with lowest effective dose. Researches are continuing on. The results of such researches will hopefully give a clear or at least clearer picture of the benefits and risks of hormone replacement therapy in near future.

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# What should be the length of the peritoneal catheter in VP Shunt ?

Barkatullah AM<sup>1</sup>, Mahmood E<sup>2</sup>, Barua KK<sup>3</sup>, Alam MM<sup>4</sup>

The ORION 2005 ; 21: 279-280

## Abstract

Complications of distal ventriculoperitoneal shunt tubing is quite common either due to a short length of the catheter or a very long length of catheter in the peritoneal cavity. This review article is based on two sample cases of hydrocephalous, in which one had a short and the other had a long peritoneal catheter placement in the peritoneal cavity during VP Shunt surgery.

**Keywords :** Cerebrospinal fluid shunts, complication.

## Case no. one

A thirteen years old right handed young boy, an amateur cricket player came to us in November 1996 with the complaints of headache, vomiting and blurring vision. Fundoscopic examination revealed gross papilloedema. A CT Scan brain revealed gross hydrocephalous with dilatation of all four ventricles without any other CT findings. A medium pressure ventriculoperitoneal shunt system was inserted by canulating the right lateral ventricle through a right parietal burr hole and the peritoneal catheter inserted through a right lower abdominal incision. After surgery the patient had an excellent recovery. He started back his usual activities as a cricketer. He was very good in bowling. After one year of surgery he noticed a small swelling in the right lower abdomen. He was advised for revision shunt surgery but he did not comply. About six and a half years later, in mid 2004 he developed headache and vomiting with gradually enlarging abdominal swelling, to the size of a cricket ball. An ultrasonogram of the abdomen revealed a cyst containing the peritoneal catheter of the VP Shunt in the anterior abdominal wall and a CT Scan of Brain revealed moderately dilated ventricular system suggesting improperly functioning VP Shunt system. He was hospitalized and revision of the peritoneal end of the ventricular catheter was planned. Upon surgery it was confirmed that the peritoneal end of the catheter had been pulled out of the peritoneal cavity and was lying between the external and internal oblique muscle layer of the anterior abdominal wall with the formation of a cyst. Excision of the cyst, repair of the anterior abdominal wall at this site and reintroduction of the peritoneal catheter in the peritoneal cavity with added length was undertaken. Post operative recovery was excellent.



Fig. 1: A swelling beneath the scar mark in the right lower abdomen.

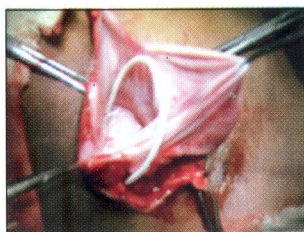


Fig. 2 : Per-operative photograph of the cystic cavity.

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## Case no. two

A two months old female child was brought to the neurosurgery unit of Mitford Hospital Dhaka, Bangladesh on March 16, 2003 with an irregular mass in the lower back. On clinical examination it was found to be a lumbar meningocele with no motor deficit of lower limbs and no urinary incontinence. The head circumference was moderately enlarged with tense and bulging anterior fontanel (OFC 45 cm). An ultra sonogram of the brain was done which revealed grossly dilated lateral and third ventricles. A right sided Chhabra Medium Pressure VP shunt system was inserted by canulating the right lateral ventricle through a right parietal burr hole and the peritoneal catheter inserted through a right sub costal incision.



Fig. 3 : Per anal extrusion of the peritoneal catheter of VP Shunt.

Excision and three layered repair of the lumbar meningocele was done in the same sitting. Post operative recovery was satisfactory and the baby was discharged after removal of skin stitches. Fifteen months later on July 4, 2004 the baby was readmitted with the peritoneal catheter coming out per anus and CSF draining out drop by drop through the slit at the tip of the peritoneal catheter of the VP shunt. The fontanel was non bulging with an OFC of 48 cm. and a midline bulge at the lower part of the back. The VP shunt was removed by opening up sub cutaneous tract below the valve of the shunt system in the neck under local anesthesia and then bisecting the peritoneal catheter there. The extruding catheter per anus was gently pulled out. Then the ventricular catheter along with the valve was also pulled out by the neck opening of the catheter tract by gentle pull.

The baby was kept on a third generation cephalosporin and metronidazole for five days and nothing by mouth and IV infusion for next twenty four hours. Oral feeds were subsequently started after confirming no bowel complications. A subsequent fresh VP shunt was inserted and the baby was doing quite fine after surgery.

## Discussion

Shunt complications are numerous and can be classified under three main headings

- i. Infection
- ii. Functional failure
- iii. Mechanical failure

Late anal extrusion of the peritoneal catheter is a very rare complication with a very few cases reported so far<sup>1,2</sup>. Factors relating to shunt failure have three potential origins: the surgeon the patient and the shunt. Shunt complications are in fact more often related to a combination of the factors<sup>3</sup>.

Experience with the primary insertion of an extended length of peritoneal tubing (120 cm) undertaken to avoid the need for a lengthening procedure because of growth of the patient, had been reported very successful<sup>4</sup>.

In a review about insertions of VP shunts using the extended length tubing over a 14-year period at Childrens Hospital of Los Angeles, a total 998 shunts were placed in 952 patients, with a mean follow-up period of 6.7 years. The patients experienced a total of 52 distal shunt revisions for a variety of malfunction etiologies. In patients ranging in age from premature neonate to 20 years, there was no increase in the distal complication rate, and specifically no complications were experienced that were directly related to the use of the extended length tubing<sup>4</sup>. An extra-abdominal cyst filled with cerebrospinal fluid was found postpartum in a patient with a ventriculoperitoneal (VP) shunt. No similar complication of VP shunting has been reported before except for our case no-1<sup>5</sup>.

### Conclusion

Extra long peritoneal catheter and the rigidity of the tube along with the poor nutritional status of the patient appears to be the cause of slow penetration of the catheter tip inside the lumen of the large gut. Pulsatile CSF out flow at the catheter tip and the peristaltic bowel movement added to the

ultimate extrusion of the shunt per anus. This rare complication can be prevented by keeping the peritoneal end of the catheter to a minimum size, not more than 10 cm in the peritoneal cavity of the neonates and 25 - 30 cm in infants<sup>6</sup>. Our experience reveals that keeping the peritoneal catheter in infants not more than 20 cm. gives better results. As regards the patient factor the nutritional status of the patient must be taken into good consideration in preventing such complications. So the answer for the question of what should be the length of the peritoneal catheter inside the peritoneal cavity be considered on the merit of each individual case.

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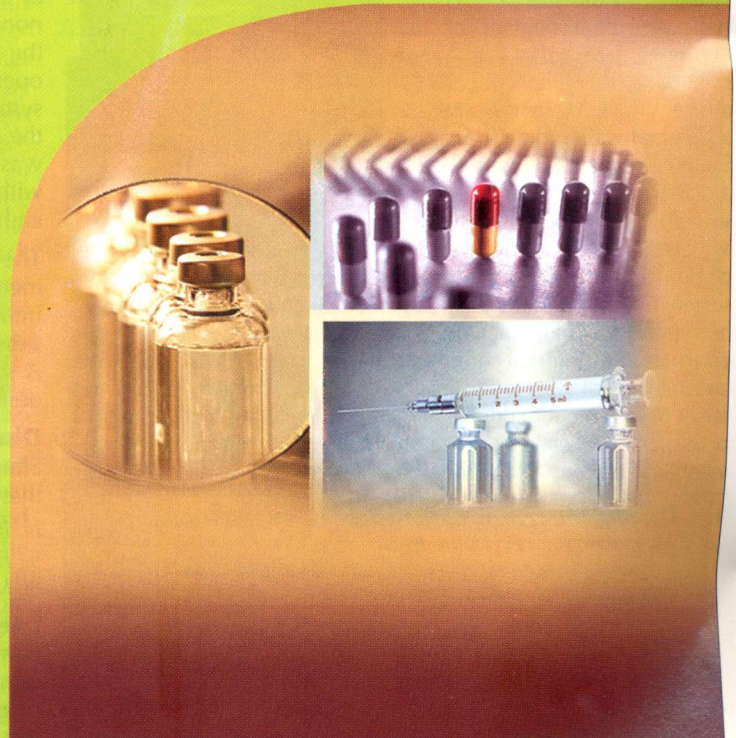
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# Laparoscopic retrieval of perforated intrauterine devices: A case report

Nahar S<sup>1</sup>

The ORION 2005 ; 21: 281

## Abstract

Intrauterine devices (IUDs) copper-T were retrieved laparoscopically from the abdomen which was the complication of complete perforation of the uterine wall. IUDs were located by ultrasound and a radiograph after that laparoscopy was performed under general anesthesia. The devices were easily detected and one case it was removed from the anterior abdominal wall with adhesion formation by omentum, another from posterior wall with bowel and omental adhesion formation. All patients were discharged after 24 hours without any complication.

## Introduction

Copper T (IUD) is long time effective and reversible contraceptive method and is popular in our country recently since their introduction in 1965. About 15 - 40 years women are using the IUD in our country. One complication is perforation of uterus at the time of insertion, which occurs in approximately 1/1000 to 1/2500 insertions<sup>1</sup>. The IUD usually perforates at one of the three sites: fundus, body of the uterus, or wall of the cervix. Perforations may be partial that is part of the IUD passing through the uterine wall or cervix or completely passing through the uterine wall into the abdominal cavity. Copper can cause an inflammatory reaction and adhesions in the abdominal cavity so it should be removed as soon as possible. The medical advisory parenthood foundation considers this necessary only if the women has abdominal symptoms<sup>2</sup>.

Operative laparoscopy has proved to be safe in removing extrauterine IUDs<sup>3,4</sup>. If there is bowel perforation or dense intra abdominal adhesion then conversion from laparoscopy to laparotomy was recommended.

## Method

All procedures were done under general anesthesia. After pneumo-peritoneum was established, a 10mm canula was placed through a sub-umbilical incision and laparoscope was introduced and two additional 5mm ports were placed right and left lower quadrants, respectively for using accessory instruments.

## Case report

### Patient no.1

A 24 year old women para -2 had IUD inserted just at the end of her menstrual cycle. During insertion she felt severe pain in the lower abdomen. One day later she could not feel the string and complained it in Upozilla family planning centre. FWAs and the doctor could not find it by sounding. Ultrasound and X-ray detected it was not in the uterus and advised to remove it. The patient remained asymptomatic for one year and consult with Gynaecologist for removal after one year. At laparoscopy, Omental adhesion was found on the anterior abdominal wall. After separation of adhesion CU-T with string was visible beneath them, which was grasped and

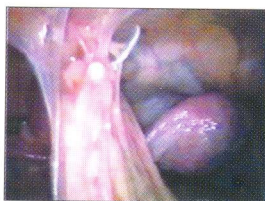


Fig-1: IUD in anterior abdominal wall with omental adhesion

removed through 5mm canula, the field was irrigated, minimal bleeding, bilateral tubal occlusion was performed by bipolar coagulation and cutting. She was discharged 24 hours and post-operative period was uneventful.

### Patient no.2

Another women 30 years old para 3 inserted CU-T after menstrual regulation. She could not felt string after one month and felt dull ache pain in lower abdomen. An ultrasound and abdominal radiography detected the device in the abdominal cavity. At laparoscopy bowel and omental adhesion was seen on the posterior uterine wall. After separation of adhesion CU-T removed through the 5mm canula. Total procedure was completed within 35 minutes. Bilateral tubal occlusion was done on the same time. Post-operative days were uneventful.

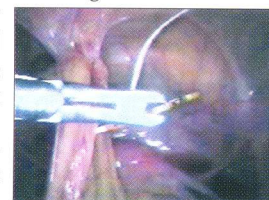


Fig-2: Laparoscopic removal of Copper-T

## Discussion

During IUDs insertion uterine perforation is not common but is one of the more serious complications and it occurs in form 1 in 350 to 1 in 2500<sup>5</sup>. Perforation of the viscera, bowel, appendix, bladder as well as impending visceral perforation have been reported as complications after uterine perforation with IUDs<sup>6,7</sup>. Removal of perforated medicated IUDs is recommended. In our first patient's perforation has been occurred by forceful insertion and 2nd. case's after completion of MR, uterus was soft. In case control analysis breast feeding women had a more than 10 fold greater risk of uterine perforation at IUD insertion than non breast feeding women<sup>8</sup>. We had successfully removed the IUDs through 5mm port with minimal bleeding. Laparoscopy, being less invasive, is now performed as a safe and successful procedure but sometimes migration of IUDs can perforate the sigmoid colon or other viscus, bowel preparation should be done before surgery for possible intestinal involvement and laparoscopy to laparotomy conversion should be considered.

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## Multiple biliary stones due to round worm fossil

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The ORION 2005 ; 21: 282-283

### Abstract

An obese lady of 40, reported to SOPD of Moulana Bhasani Medical College Hospital on 27/10/2004 with the complaints of repeated attacks of colicky abdominal pain in the right hypochondrium associated with fever, vomiting and intermittent jaundice for five years. Clinically she was anemic & non-icteric. Ultrasonogram of whole abdomen revealed dilated intrahepatic and proximal CBD and ERCP revealed stones in CBD and CHD. She underwent open surgery for the removal of biliary stones by cholecystectomy and choledocholithotomy basing upon per operative findings on 02/11/2004 followed by T-tube placement in CBD. After exploration of CBD, a round worm fossil with multiple stones and biliary sludge were removed. She had an uneventful post-operative recovery. The patient was discharged from the hospital on 15<sup>th</sup> post-operative day after observing satisfactory post-operative T-tube cholangiogram.

**Key word :** Secondary biliary stones. Round worm fossil.

### Introduction

Stones develop de novo within the bile ducts are called 'Primary duct stone'. Such stones are commonly encountered in the tropics where they may be secondary to infestation of the biliary tree by *Ascaris lumbricoides* and *Clonorchis sinensis*. They also occur in any condition that causing prolonged biliary obstruction<sup>1</sup>. Approximately 15% of the patients with stones in the gall bladder are found to harbour calculi within the bile duct. Common bile duct stones are usually accompanied by others in the gall bladder, but in 5% of cases the gall bladder is empty. The number of duct stones may vary from one to more than hundred. Most cholesterol stones develop within the gall bladder and reach the duct after traversing the cystic duct, these are secondary stones. Pigment stones may have a similar pedigree or more often, develop de novo within the common bile duct. These are primary stones. About 60% of common bile duct stones are cholesterol stones and 40% are pigment stones. 50% patients with choledocholithiasis remain asymptomatic<sup>2</sup>.

### Case Report

Hosne Ara Begum of 40 years, a married, fatty lady from Ashkona, Uttara, Dhaka, admitted to MBMCH, Uttara, Dhaka on 27/10/2004 with complaint of acute abdominal pain in right hypochondrium associated with fever and vomiting. She had similar episodes of abdominal pain for five years with intermittent jaundice. Pain was colicky in nature and clinically she was moderately anemic and non-icteric. She had no

history of HTN, DM or Br. Asthma. Routine blood report was normal except a raised ESR (140mm i1st hour) & serum alkaline phosphatase (210 U/L) with low Hb% (10 gm/dl). Diagnosis of biliary obstruction was made after clinical examination, laboratory and radiological investigations. Basing upon USG & ERCP findings she underwent open surgery on 02/11/2004 for the removal of primary stones by choledocholithotomy, but during per-operative primary survey gall stones were felt and cholecystectomy was performed in addition to choledocholithotomy. After exploration of CBD, a roundworm fossil with multiple stones and biliary mud or sludge were removed from the hugely dilated CBD. After a considerable duct wash by normal saline through plain rubber catheter T-tube was inserted in the CBD. Abdomen was closed in a standard manner followed by abdominal drainage. Tissue histopathology report was suggestive of chronic cholecystitis.



Fig-I : Affected patient

### Discussion

Choledocholithiasis is the presence of stones within the biliary tree, occurring about 15% of patients with cholelithiasis. In Western nations, almost all stones are derived from the gall bladder although both cholesterol and pigmented stones can form de novo anywhere in the biliary tree. In Asia, there is a much higher incidence of primary ductal and intrahepatic stone formation. Usually pigmented choledocholithiasis may be asymptomatic or may cause symptoms from-

1. Obstruction,
2. Pancreatitis,
3. Cholangitis,
4. Hepatic abscess,
5. Secondary biliary cirrhosis &
6. Acute calculus cholecystitis<sup>3</sup>.



Fig-II : Gall stone, round worm fossil & bile duct stone

Carcinoma of the gall bladder is very frequently superimposed on a chronically inflamed organ that contains stones. It is an uncommon form of cancer and there may be little causal relationship between the stones and the subsequent malignancy<sup>4</sup>. Gallstones are found in about three-quarters of cases of cancer of the gall bladder, nevertheless, carcinoma is a rare complication of this very common condition<sup>5</sup>.

Hepatobiliary and pancreatic diseases are most commonly caused by direct mechanical obstruction of the pancreato-biliary system from the adult roundworm migrating across the ampulla of Vater. As a result, patient infected with roundworm can present with biliary colic (50%), tender hepatomegaly (50%), acute cholangitis (24%), acalculas cholecystitis (13%), acute pancreatitis (6%) and occasionally hepatic abscess<sup>6</sup>. In addition, dead worm or ova may serve as a nidus for the formation of pigment stone, which can lead to recurrent pyogenic cholangitis after the active infection has been treated successfully<sup>7</sup>.

The diagnosis of ascariasis is made with identification of an adult worm, larvae or egg from a patient's stool. Mild to moderate

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## Case Report

peripheral eosinophilia is associated with the larval stage of ascaris infection but is absent during the intestinal infestation with adult worm<sup>8</sup>. The serum alkaline phosphatase level usually rises and may be the only chemical abnormality in-patient without jaundice in case of choledocholithiasis<sup>9</sup>. Trans-abdominal USG, CT Scan or MRI can be useful in diagnosis of hepatobiliary ascariasis. Ultrasound has the advantage of being readily available, inexpensive and capable of real-time imaging. In a large retrospective review, ultrasonography correctly diagnosed the presence of worms in 52% patients. ERCP has also been used successfully to aid in the diagnosis of difficult cases. ERCP is the primary therapeutic modality in biliary obstruction caused by ascaris infestation. Complete clearance can be obtained in the majority of patients and is strongly recommended to avoid leaving a nidus for future stone formation<sup>10</sup>. All patients diagnosed with ascaris infection should receive antihelminthic therapy.

**Conclusion**

Roundworm fossil induced stone in biliary apparatus actually happened in those patients who have intestinal ascariasis. It needs reasonable time for the formation of fossil. Mrs. Hosne Ara gave the history of recurrent attack of acute abdominal pain during her five years disease course. She roamed from one physician to another but much attention was not paid for the diseases. Definitely, during entrance of the viable roundworm in the CBD she had acute abdomen like symptoms but it was not detected at that time. The end result was the formation of

roundworm fossil with multiple biliary stones. Lastly she reported in the Department of Surgery of MBMCH where open surgery was performed and biliary stones with roundworm fossil were removed. Intestinal ascariasis is prevalent in Bangladeshi rural people having poor primary health education as well as substandard sanitary facilities. Improvement of sanitary facilities and primary health care education may be beneficial for the prevention of the diseases.

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**MSD NEWS**

Contd. from Page-285

**Venue: Seminar Room, Sher-E-Bangla Medical College, Barisal**

Orion Laboratories Limited arranged a discussion on "Thyroid swelling" on 6th April 2005 at Seminar Room, SBMCH. Dr. Md. Anwarul Islam, Assoc. Prof. & Head of The Dept. of Surgery, SBMCH chaired the occasion. Dr. Swapan Mitra, IMO, SU-II; Dr. Md. Mamun, A/R, SU-III; Dr. Rezaul Hossain, IMO, SU-I and Dr. Md. Abul Hossain, A/R, Su-IV, SBMCH discussed on the topic respectively.

**Venue: Seminar Room, Sher-E-Bangla Medical College, Barisal**

Orion Laboratories Limited arranged a discussion on "Vertex- Safe & Save" on 26th February 2005 at Seminar Room, SBMCH. Dr. Aziz Rahim, Assoc. Prof. of Orthopaedics, SBMCH chaired the occasion. Dr. Abul Hossain, A/R, Surgery Department, SBMCH discussed on the topic.

**Venue: Seminar Room, Sher-E-Bangla Medical College, Barisal**

Orion Laboratories Limited arranged a RTM on "Role of Ceftriaxone in Septicemia" on 25th February 2005 at Seminar Room, SBMCH. Dr. Anwarul Islam, Head of the Department of Surgery, SBMCH chaired the occasion. Dr. Nazrul Islam, Assistant Professor of Surgery, SBMCH discussed on the topic.

**Venue: Doctors Meeting Room, General Hospital, Jhenaidah**

Orion Laboratories Limited arranged a RTM on "Stroke & its Management" on 7th February 2005 at Doctors Meeting Room, General Hospital, Jhenaidah. Dr. Sk. A. Fattah, Consultant Medicine chaired the occasion. Dr. Dr. Rawshan Ara Swapna, FCPS (Med), 1st Part, discussed on the topic.

**Venue: Seminar Room, Sher-E-Bangla Medical College, Barisal**

Orion Laboratories Limited arranged a RTM on "Lymphoma" on 12th January 2005 at Seminar Room, SBMCH. Dr. Syed Zahid Hossain, Head of the Department of Paediatrics, SBMCH chaired the occasion. Dr. Abdul Hamid Sheikh, Assistant Professor of Paediatrics, SBMCH discussed on the topic.

**Venue: Paediatrics Unit of Raghieb Rabeya Medical College & Hospital, Sylhet**

Orion Laboratories Limited arranged a RTM on "Management of Pneumonia" on 27th February 2005 at Paediatrics Unit of Raghieb Rabeya Medical College & Hospital, Sylhet. Dr. Kamrul Hasan, Medical Associate, Sylhet of Orion Laboratories Ltd. discussed on the topic.

**Venue: Surgery Unit of Raghieb Rabeya Medical College & Hospital, Sylhet**

Orion Laboratories Limited arranged a RTM on "Management of Surgical Emergencies" on 26th February 2005 at Surgery Unit of Raghieb Rabeya Medical College & Hospital, Sylhet. Dr. Kamrul Hasan, Medical Associate, Sylhet of Orion Laboratories Ltd. discussed on the topic.

**Venue: Medicine Unit of Sylhet Osmani Medical College & Hospital, Sylhet**

Orion Laboratories Limited arranged a RTM on "Management of PUO" on 13th March 2005 at Medicine Unit of Sylhet Osmani Medical College & Hospital, Sylhet. Dr. Md. Jahangir, C/A, MU-III, SOMCH chaired the session and Dr. Zia, Intern, MU-III, SOMCH discussed on the topic.

**Venue: Thana Health Complex, Baralackha**

Orion Laboratories Limited arranged a RTM on "Management of Pneumonia" on 17th April 2005 at THC, Baralackha. Dr. Gurupada Roy, THA, Baralackha THC chaired the session and Dr. Kamrul Hasan, Medical Associate, Sylhet of Orion Laboratories Ltd. discussed on the topic.

**Venue: Royal Chef Chinese Restaurant, Mirza Jangal, Sylhet**

Orion Laboratories Limited congratulate the Intern Doctors of Sylhet Osmani Medical College and arranged a grand gala reception program at 7:00 pm on 10th April 2005 at Royal Chef Chinese Restaurant, Sylhet. Dr. Ashrafur Islam Rana, Intern Doctor, SOMCH welcomed the participants. Dr. Mohammad Nurullah, Convenor, IDA, SOMCH chaired the session. Dr. Mehbub Ahsan Rony, Member, IDA, SOMCH and Dr. S.M. Hanif Chowdhury Jewel, Member Secretary, IDA, SOMCH was present as Special Guest and Chief Guest respectively on the occasion.



## Launching of New Products

### Pep- 20 Tablet

Elemental Zinc 20 mg

#### *Panacea for the whole family*

Pep - 20 tablet contains zinc sulphate monohydrate equivalent to 20 mg elemental zinc. It is a source of zinc which is essential trace element required for human nutrition and involved in a number of body enzyme system. Severe zinc deficiency causes skin lesion, alopecia, diarrhoea, increased susceptibility of infections, cognitive impairment, and failure to thrive in children.

#### *What is Zinc*

Zinc is essential trace mineral for plant, animals and humans and it must be obtained from the diet or external source since the body cannot make enough.

#### *Sources of Zinc*

Oysters (Very high) , liver, beef, lamb, other meats, wheat flour and bread, wheat bran, sardines, crab, breakfast cereals, nuts and legumes

#### *Zinc content in human body*

Zinc content in the body = 2 gm

Distribution of Zinc in body : 60% in the muscles, 30% in the bones 6% in the skin and 4% in other parts of body

#### *Zinc boosts up immune system*

Zinc enhances immune system activity by helping formation and activation of T-cells, B-cells and also by antibody production. People who are Zinc deficient tend to be more susceptible to a variety of infections like colds, UTIs, diarrhoea, pneumonia and malaria.

#### *Role of Zinc in diarrhoea*

Diarrhoea causes frequent loss of Zinc from the body and Zinc supplement reduces the severity, duration and incidence of diarrhoea. Zinc 20mg/day for 10-14 days improves diarrhoea in children. 25% reduction of duration in acute diarrhoea, 29% reduction of duration in persistent diarrhoea. 88% of diarrhoeal deaths are preventable with the use of ORS and Zinc supplementation for diarrhoea treatment

#### *A unique adjuvant therapy in diabetes mellitus*

Zinc plays multiple roles in proper insulin production and glucose utilization. Zinc is needed to help the pancreas produce insulin, to allow insulin to work more effectively and to protect insulin receptor cells. When Zinc levels are low, two things can happen-Insulin secretion from pancreas is low, so glucose levels remain high in blood Insulin may not work properly, so glucose cannot enter the cells and resulting in elevated blood glucose level.

#### *Pep-20 reduces cardiovascular complications*

Free radical injury plays a major role in the development of arteriosclerosis, cardiovascular diseases and cancer. Several studies suggest, Zinc has a role in protecting against oxidative damage. Compared with healthy controls, patients with coronary artery disease exhibited significantly lower plasma Zinc levels. Another study conducted in rural and urban populations in India, showed a positive correlation between lower intake of dietary Zinc, lower serum Zinc levels and the prevalence of coronary artery disease and diabetes.

#### *Pep-20 reduces wound healing time*

Human and animal studies have demonstrated the potential impact of moderate Zinc supplementation in aiding wound healing. The healing time of a surgical wound was reduced by 43% following adequate oral supplementation with Zinc Sulphate. For this, perioperative Zinc supplementation at moderate doses (30 to 60mg daily) is recommended for Zinc-depleted patients. Zinc supplementation also improved healing in elderly patients suffering from chronic leg ulcers and pressure sores.

#### *Pep-20 improves appetite in anorexic patients*

Zinc activates areas of brain that receive and process information from taste and smell sensors and thus improves taste and smell perception. Taste is mediated through salivary Zinc dependent polypeptide termed gustin. Thus low salivary Zinc levels leads to a reduction of taste and reduces appetite for food. A recent study showed that Zinc supplementation improved appetite in anorexic patients remarkably.

#### *Zinc deficiency leads to Chronic Fatigue Syndrome (CFS)*

Fatigue is an excessive feeling of tiredness, lethargy, lack of energy, or exhaustion accompanied by a strong desire to rest or sleep. Unrelenting feelings of generalized fatigue may lead to Chronic Fatigue Syndrome (CFS). US Centers for Disease Control estimates that 200 per 100,000 persons suffer from Chronic Fatigue Syndrome (CFS). Zinc deficiency may lead to Chronic Fatigue Syndrome (CFS). Mild to extreme Zinc deficiency can cause immunodepression and produce muscle pain and fatigue.

#### *Pep-20 helps in boosting male fertility by-*

- Production of healthy sperm
- Maturation of sperm
- Increasing sperm count and concentration (more than 20 million/ml)
- Improving sperm motility
- Developing potency by increasing testosterone levels significantly

Men with low testosterone levels received Zinc Sulphate supplement (60 mg elemental Zinc daily) for 45-50 days and mean sperm count increased significantly from 8 to 20 million. Testosterone levels also increased and 9 out of the 22 wives became pregnant during the study.

#### *Pep-20 heals various types of skin disorders*

Zinc supplementation effectively treats psoriasis, dermatitis, acne, seborrhea, eczema and many other disorders of the skin.

#### *Pep-20 is essential for the treatment of Pre-menstrual Syndrome (PMS)*

PMS affects 50% of all menstruating women. PMS is associated with anxiety, depression, crying tendency, headache, and fatigue. Zinc regulates the secretion of many hormones including progesterone. Thus Zinc may help in the treatment of PMS.

#### *Pep-20 is indispensable for lactating mother & child*

The requirement of Zinc during lactation is quantitatively greater than those during pregnancy. Maternal Zinc supplement ensures - improved lactation, subsequent reproductive performance, improved maternal Zinc status, optimization of infant growth, developed immune function. Zinc excretion through milk during early postpartum: 2-3 mg/ day

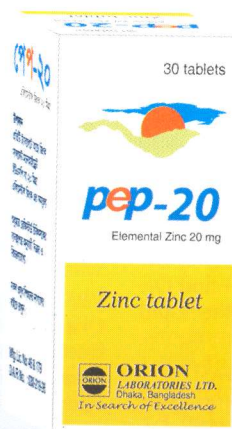
#### *Pep-20 reduces pregnancy related complications*

Zinc deficiency can cause immunosuppression that might persist through the third generation of the offspring. Zinc is necessary to avoid maternal complications such as - pregnancy induced hypertension, pre-eclampsia, intrapartum hemorrhage, infections, prolonged labor.

#### *Pep-20 helps in proper development of embryo*

Zinc is essential for excellent birth outcomes. Zinc deficiency may cause poor birth outcomes with - congenital anomalies, abortion, fetal growth retardation, premature baby and bone development problems in fetus.

Pep - 20 is indicated for the correction of zinc deficiency problems like growth retardation, decreased taste and smell, alopecia, dermatitis, diarrhoea, immunological dysfunction, failure to thrive, gonadal atrophy, impaired spermatogenesis, wound healing, fatigability, psychiatric disorders and congenital malformation. The usual dose is one tablet 1-3 times daily. Pep - 20 is available as 20 mg tablet and the price is Tk. 45/ phial.



## MSD NEWS

MSD personnel of ORION Laboratories Limited spent a bustling schedule in first quarter of 2005, in organizing Seminars / Clinical meetings/ Internee Doctors Reception Program in various venues as a part of their Continued Medical Education (CME) Program.

### Venue : Dept. of Obs & Gynaecology, BSMMU



From left to right : Prof. Firoza Begum, Prof. M. Anwar Hossain, Prof. Latifa Shamsuddin, Prof. S.R.Begum, Prof. Saleha Begum Chowdhury

A scientific seminar on "HRT- risk, benefit & recent concept" held on 15th March 2005 at Dept of Obs & Gyn, BSMMU. Professor Latifa Shamsuddin, Chairman, Dept. of Obs & Gyn, BSMMU chaired the session. Prof. Saleha Begum Chowdhury, Professor of U-5, Dept. of Obs & Gyn, BSMMU discussed on the topic. Prof. Sultana Jahan, Prof. S. R. Begum, Prof. Anwar Hussain were also present as Panel of Experts on the session.

### Venue: 50 Bedded Hospital, Tongi

Orion Laboratories Limited arranged a scientific seminar on "Road Accident & Mass Casualty" on 10th March 2005 at 50 Bedded Hospital, Tongi. Dr. Tahmina Begum, Consultant, Gynaecologist, chaired the occasion. Architect M. Ashraf Al Alam Ratan, Researcher, WBB Trust; Dr. Shakeel Akhtar, Consultant, Orthopaedic Surgeon; Dr. Deen Mohammad, Consultant Surgeon discussed on the topic respectively.



### Venue: Cardiology Conference Room, Dhaka Medical College & Hospital

Orion Laboratories Limited arranged a RTM on "Diabetes & Its Management in Surgery" on 19th February 2005 at Cardiology Conference Room of DMCH. Dr. Feroze Quader, Associate Professor, Dept. of Casualty, DMCH, chaired the occasion. Dr. Monoj Kumar Sarker, HMO, Casualty Surgery, DMCH discussed on the topic.



### Venue: China Kitchen Restaurant, Dhaka

A farewell and reception program of Medicine Unit- Green of Dhaka Medical College Hospital held on 15th March 2005 at China Kitchen Restaurant, Dhaka. Prof. M. A. Faiz, Professor of Medicine Department, DMCH chaired the occasion.

### Venue: Samorita Hospital, Dhaka

Orion Laboratories Limited arranged a discussion on "Vertex-Safe & Save" on 13th February 2005 at Samorita Hospital. Dr. A. B. M. Haroon, Managing Director, Samorita Hospital Ltd. chaired the occasion. Dr. Nasimul Hasan, Medical Associate, Dhaka of Orion Laboratories Limited discussed on the topic.

### Venue: Dhanshiri Chinese Restaurant, Chandpur

Orion Laboratories Limited arranged a discussion on "Vertex-Safe & Save" on 16th February 2005 at Dhanshiri Chinese Restaurant. Dr. S. M. Shahidullah, President, BMA, Chandpur chaired the occasion and Dr. Md. Abdul Mannan, Civil Surgeon, Sadar Hospital, Chandpur was also present as Chief Guest of the session. Dr. Nasimul Hasan, Medical Associate, Dhaka of Orion Laboratories Limited discussed on the topic.



### Venue: Surgery Unit Seminar Room, SSMC & Mitford Hospital

Orion Laboratories Limited arranged a discussion on "Vertex- Safe & Save" on 13th January 2005 at Surgery Unit Seminar Room, SSMC & Mitford Hospital. Prof. Dr. Khademul Islam, Head of the Dept. of Surgery, SSMC & Mitford Hospital chaired the occasion. Dr. Md. Nasir Uddin, Senior Medical Associate, Dhaka of Orion Laboratories Limited discussed on the topic.

### Venue: Medicine Unit Seminar Room, SSMC & Mitford Hospital

Orion Laboratories Limited arranged a scientific seminar on "Zinc & it's importance in Bangladesh" on 13th April 2005 at Medicine Unit Seminar Room, SSMC & Mitford Hospital. Prof. M. A. Azhar, Head of Dept. of Medicine, SSMC & Mitford Hospital chaired the occasion and Dr. Nasimul Hasan, Medical Associate, Dhaka of Orion Laboratories Limited discussed on the topic.

### Venue: Paediatrics Unit of Rajshahi Medical College & Hospital

Orion Laboratories Limited arranged a discussion on "Congenital muscular dystrophy" on 17th February 2005 at Paediatrics Unit II & III, RMCH. Prof. M. H. Haidary, Head of Unit-III chaired the occasion and Dr. Md. Abul Kashem, Registrar, Paediatrics Unit-III discussed on the topic.

### Venue: Surgery Unit of Rajshahi Medical College & Hospital

Orion Laboratories Limited arranged a discussion on "Tubercular epididymitis" on 16th March 2005 at Surgery Unit IV, RMCH. Dr. Monzurul Haque, Assoc. Prof. of Surgery Department, RMCH chaired the occasion and Dr. Rezaul Kabir Helal, Asst. Prof. of Skin & V.D. Dept. RMCH also present as Chief Guest. Dr. Lutfun Nahar Lina, Internee Doctor, Surgery Unit-IV, RMCH discussed on the topic.



### Venue: Thana Health Complex, Rohonpur

Orion Laboratories Limited arranged a discussion on "Pep-20" on 6th April 2005 at Thana Health Complex, Rohonpur. Dr. Muktara Begum, THA, chaired the occasion. Dr. G. M. Raihanul Islam, Medical Associate, Rajshahi of Orion Laboratories Limited discussed on the topic.



### Venue: Family Welfare Visiting Training Institute (FWVTI) Conference Room, Rajshahi

Orion Laboratories Limited arranged a scientific seminar on "Maternal Health Care" on 14th January 2005 at Family Welfare Visiting Institute Conference Room, Rajshahi. Dr. Md. Riazul Islam, Deputy Director, Family Planning, Rajshahi chaired the occasion and Dr. Syeda Tajnin Warish, Program Manager, MCH Service discussed on the topic.

### Venue: Islami Bank Hospital, Dhaka



From left to right : Dr. Iqbal Hossain Chowdhury, Dr. Harun -Ar-Rashid, Dr. Atiar Rahman

Orion Laboratories Limited arranged a scientific seminar on "Zinc & Its Importance In Bangladesh" on 22nd March 2005 at Islami Bank Hospital, Motijheel, Dhaka. Dr. Md. Harun-Ar-Rashid, Superintendent, Islami Bank Hospital chaired the occasion and Dr. Md. Atiar Rahman, Consultant, Paediatrics Department, BSMMU discussed on the topic.

The rest of the MSD news at page -283

## Medi News

### Acupuncture 'cuts blood pressure'

Acupuncture combined with electronic stimulation can lower high blood pressure, US researchers say. In tests on rats, the treatment lowered raised blood pressure by as much as 50%, the University of California team at Irvine found. They are now testing to see whether the technique will have the same effect in people with high blood pressure, also known as hypertension. Their early findings in animals appear in the *Journal of Applied Physiology*. Acupuncture is an ancient Chinese practice that involves inserting needles at specific points on the body to help treat diseases and symptoms such as pain. Dr John Longhurst and his team applied the acupuncture to specific points on the forelimbs of rats with artificially elevated blood pressure. The equivalent sites on humans are on the inside of the forearm, slightly above the wrist. When the acupuncture was applied on its own, it had no effect on blood pressure. However, when small, low frequency electrical currents were passed through the needles, the blood pressure went down by between 40 and 50%. A 30-minute session reduced blood pressure in the test rats by 25mmHg, with the effect lasting for almost two hours.



Needles are inserted at specific sites on the body

[bbc.com/health](http://bbc.com/health)

### Bad news really can break hearts

Hearing shocking news, such as learning of the death of a loved one, really can break your heart, researchers suggest. A team from Johns Hopkins University suggest patients can suffer days-long surges in adrenalin and other stress hormones which "stun" the heart. The study, published in the *New England Journal of Medicine*, says such symptoms can be mistaken for a heart attack. But these broken hearts can be mended-the damage caused by stress is temporary, usually lasting just weeks. The researchers examined 19 patients who came into hospital with symptoms similar to those of a heart attack - chest pains, fluid in the lungs, shortness of breath and heart failure. But when these patients, who were predominantly older women, were examined, it was found that they had no blockages in the arteries supplying the heart, or other clinical signs of a heart attack. And when doctors investigated further, they found that the patients had very high levels of stress hormones, particularly adrenalin and noradrenalin, in their blood. The levels seen in these patients were between seven and 34 times those seen in a group of seven heart-attack patients studied. These stress hormones can be toxic to the heart, say the researchers, effectively stunning it. The stressed patients also had higher than normal levels of a heart-hormone called brain natriuretic peptide, which indicates the heart is working harder than it normally should. In addition, echocardiograms - a test which measures heart function, and electrocardiograms, which measure electrical activity in the heart, showed a unique pattern, distinct from the results seen after heart attacks.



Hearing unexpected sad news is linked to the release of hormones

[bbc.com/health](http://bbc.com/health)

### Carrots may help ward off cancer

A compound in carrots may reduce the risk of developing cancer, research suggests. A team from the University of Newcastle Upon Tyne found the natural pesticide falcarinol reduced the risk of cancer developing in rats by a third.

They hope the discovery will lead to a new generation of anti-cancer drugs - and tips to growers on how to boost the beneficial properties of their produce. Details are published in the *Journal of Agricultural and Food Chemistry*. Falcarinol protects carrots from fungal diseases, such as liquorice rot that causes black spots on the roots during storage. The scientists investigated the compound after a previous published study suggested it could prevent the development of cancer. The research team carried out tests on 24 rats with pre-cancerous tumours. After 18 weeks, rats who ate carrots along with their ordinary feed, and those given feed and falcarinol supplement were one third less likely to develop full-scale tumours than rats who were given just ordinary feed.

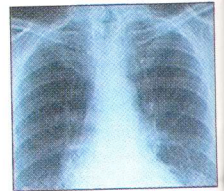


Carrots contain a beneficial natural pesticide

[bbc.com/health](http://bbc.com/health)

### Chest infection drug ineffective

A widely used treatment for a type of life threatening chest infection is essentially ineffective, say experts. Some people with pneumonia develop an infection of the lining that coats the outside of the lung, called the pleura. Draining off the infected pus that collects between the lung and the chest wall helps, and some believe adding a drug into the space speeds this up. But a Medical Research Council study in the *New England Journal of Medicine* calls into question this rationale. Previous studies suggesting some benefit of administering so-called 'fibrinolytic' drugs, such as streptokinase, into the chest cavity have involved only small numbers of patients. It was thought that these drugs might help make the fluid more runny and break down any pockets of pus so it is easier to drain. Streptokinase is also used to break down blood clots in patients who have had a stroke. The MRC study looked at over 450 patients across 52 UK hospitals to provide more definitive evidence. Half of the patients were given an streptokinase therapy into the chest cavity before the fluid was drained using a tube in the usual way. The other half were given only a saline solution before the fluid was drained. All of the patients received appropriate antibiotic therapy. The streptokinase treatment was found to be no better than the 'dummy' saline treatment in terms of death risk or need for surgery to drain 'difficult to remove' fluid. Lead researcher Dr Robert Davies, from the Oxford Centre for Respiratory Medicine, said the findings showed giving such drugs was essentially ineffective. "Generally, the use of these drugs should be avoided because they produce no advantage in long-term outcomes and can have side effects."



Pus can collect outside the lung

[bbc.com/health](http://bbc.com/health)

### Cockroaches linked to asthma risk

Cockroaches are worse than pets and dust mites for people with asthma, a study says. Researchers found cockroach allergens played a "very important role" in exacerbating the symptoms of asthma in inner city children in the US. The University of Texas Southwestern Medical Center studied 937 children. It found children missed more school days and visited the doctor more with asthma symptoms brought on by cockroach allergens than others. Reaction to pet allergens also had an impact but it was found to be borderline, while dust mite exposure did not exacerbate symptoms, the *Journal of Allergy and Clinical*



Cockroaches in inner cities affect people with asthma

## Medi News

Immunology reported. Report author Rebecca Gruchalla said the allergic reaction to cockroaches varied from child to child but skin testing showed that 69% were sensitive. But she added cockroaches played a "very important role in exacerbating asthma symptoms in inner city children who are sensitive and exposed to high levels of that allergen". She said parents can protect their children by making sure homes are clean. [bbc.com/health](http://bbc.com/health)

### Natural yoghurt beats bad breath

Sugarless yoghurt could help beat bad breath, tooth decay and gum disease, say scientists. Japanese researchers found eating the yoghurt reduced levels of hydrogen sulphide - a major cause of bad breath - in 80% of volunteers. The key are active bacteria in yogurt, specifically *Lactobacillus bulgaricus* and *Streptococcus thermophilus*.

Details were presented at a meeting of the International Association for Dental Research. A total of 24 volunteers who took part in the study were given strict instructions on oral hygiene, diet and medication intake. They spent two weeks avoiding yoghurts and similar foods, like cheese. Researchers then took saliva and tongue coating samples to measure bacteria levels and odour-causing compounds, including hydrogen sulphide. The volunteers then ate 90 grams of yoghurt a day for six weeks. At the end of the study, researchers took samples again. They found hydrogen sulphide levels decreased in 80% of participants. Levels of plaque and the gum disease gingivitis were also significantly lower among yoghurt eaters. [bbc.com/health](http://bbc.com/health)



Good dental hygiene keeps breath fresh

### Oiling up babies stops infection

Massaging small babies with sunflower seed oil is a cheap and easy way to protect them against infections, doctors advise. Premature babies are at increased risk of life-threatening infections because their skin is under-developed and lacks full barrier protection. A study in the *Lancet* shows anointing the skin with sunflower seed oil helps restore this barrier to cut infections. The findings are particularly important for developing countries, they say. Every year over 13 million babies are born prematurely across the world - many in developing countries. Mortality is particularly high in poorer countries because the babies often require specialist medical treatment which can be expensive, and infection is a major problem. Dr Gary Darmstadt and colleagues from Johns Hopkins University in the US studied premature babies born in Bangladesh. Mothers there, as in much of South Asia, massage their babies with mustard oil. But unlike sunflower seed oil, Dr Darmstadt believes this could be doing more harm than good because it has a toxic rather than a protective effect on the skin and delays recovery of the skin's natural barrier. He ran a trial where 497 premature (less than 33 weeks gestation) and low birth weight (less than 1.5kg) babies were randomly assigned to receive sunflower seed oil, a petroleum-based ointment called Aquaphor or no intervention. The treatments were applied to the entire body of the babies, apart from the scalp and face, three times a day for the first 14 days and then two times a day until the babies were discharged from the hospital. [cnn.com/health](http://cnn.com/health)



Oiling decreases chance of infection

### Size 'does not matter' for brains

When it comes to brain size and intelligence, bigger is not necessarily better, say scientists. Although our brains are triple the size of our primitive ancestors, history suggests the growth had nothing to do with becoming smarter. Ancient man went through two periods where brain mass increased, yet during these times toolmaking techniques did not improve, says William Calvin. The Washington University professor says other factors must be responsible. "Everybody assumes that bigger is smarter is better. That doesn't really appear to be true," Professor Calvin told the annual meeting of the American Association for the Advancement of Science (AAAS). "Cleverness, at least for toolmaking, did not improve despite a lot of brain size increase." From the time when *Homo sapiens* were walking around in Africa 200,000 years ago with a brain size of ours, little happened in terms of intellectual revelations until 150,000 years later, according to Professor Calvin. At this time, there was a burst of creativity with the emergence of higher intellectual functions such as more complicated language construction, chains of logic, structured music and games with arbitrary rules, he said. [reuters.com/health](http://reuters.com/health)



Human brains today are triple the size of those of ancient man

### Study suggests 'type 3 diabetes'

Scientists say they may have discovered a previously unknown form of diabetes, after finding the brain produces insulin as well as the pancreas. Unlike other types of diabetes, the form dubbed type 3 by the US Brown Medical School team is not thought to affect blood sugar. Type 3 affects brain insulin levels, and appears to be linked with Alzheimer's disease. The team's research appears in the *Journal of Alzheimer's Disease*. Type 1 and type 2 diabetes occur when the body is unable to produce or use insulin from the pancreas. The so-called 'type 3' diabetes refers to lower than normal levels of newly discovered brain insulin, which appears to be associated with Alzheimer's disease in some way. Scientists have known for some time that people with diabetes have an increased risk of Alzheimer's disease - by up to 65%. They have also discovered that many type 2 diabetics have deposits of a protein in their pancreas which is similar to the protein deposits found in the brain tissue of people with Alzheimer's disease. Research has been going on to find out what links the two conditions. Dr Suzanne de la Monte and colleagues now believe it is down to what they are calling type 3 diabetes. By looking at rodents and post-mortem brain tissue from people with Alzheimer's disease they have found that insulin and its related proteins are actually produced in the brain, and that reduced levels of both are linked to Alzheimer's disease. They say this insulin and its related growth factors and receptors in the brain are vital for the survival of brain cells. If they are not produced at normal levels, the cells die. In the case of Alzheimer's, the cells that die are located in the part of the brain involved with memory, called the hippocampus. Dr de la Monte, who is a neuropathologist at Rhode Island Hospital, said: "What we found is that insulin is not just produced in the pancreas, but also in the brain." [bbc.com/health](http://bbc.com/health)



The brain is another source of insulin say the researchers

## Information for Authors

### *The followings are the minimum requirements for manuscripts submitted for publication*

The **MANUSCRIPT** should be prepared according to the modified Vancouver style as proposed by the International Committee of Medical Journal Editors (ICMJE). The entire uniform requirements document was revised in 1997 which is available in the Journal of American Medical Association (JAMA, 1997; 277:927-934) and is also available at the JAMA website. Sections were updated in May 1999 and May 2000. A major revision is scheduled for 2001. The following section is based mostly on May 2000 update.

**THREE COPIES** of the manuscript should be sent in a heavy paper envelope. Manuscripts must accompany a covering letter signed by all authors. This must include (i) information on prior or duplicate publication or submission elsewhere of any part of the work as defined earlier in this document; (ii) a statement of financial or other relationships that might lead to a conflict of interest; (iii) a statement that the manuscript has been read and approved by all the authors, that the requirements for authorship have been met; and (iv) the name, address, and telephone number of the corresponding author, who is responsible for communicating with the other authors about revisions and final approval of the proofs. The letter should give any additional information that may be helpful to the editor.

A 1.44 MB 3.5 inch good quality **FLOPPY DISK** or **CD** must accompany the printed copies of the manuscript containing an electronic copy of the manuscript prepared in Microsoft Word 6.0 or later version.

### **PREPARE MANUSCRIPT AS PER THE FOLLOWING GUIDELINES**

**DOUBLE-SPACE** all parts of manuscripts. **TYPE** or **PRINT** on only side of the paper. Number pages consecutively, beginning with the title page. Put the page number in the upper or lower right-hand corner of each page.

**BEGIN, ON A NEW PAGE**, each section or component with following sequence: title page, abstract and key words, text, acknowledgments, references. Tables, figures and illustrations may be positioned within the text where they should appear.

The **TEXT** of observational and experimental articles is usually divided into sections with the headings of Introduction, Methods, Results, and Discussion. Long articles may need subheadings within some sections (especially within the Results and Discussion sections) to clarify their content. Other types of articles, such as case report, review, and editorial, are likely to need other formats.

The **TITLE PAGE** should carry (i) the title of the article, which should be concise but informative; (ii) the name by which each author is known, with his or her highest academic degree and institutional affiliation; (iii) the name of the department and the institution to which the work should be attributed; (iv) disclaimers, if any; (v) the name and address of the author responsible for correspondence concerning the manuscript; and (vi) sources of support in the form of grants, equipment, or drugs.

The **ABSTRACT** should be in second page and should usually be not more than 150 words for unstructured abstracts or 250 words for structured abstracts. The structured abstract should have following sections: (i) objective(s), (ii) methods, (iii) year and place of work, (iv) results, and (v) conclusion. The abstract should state the purposes of the study or investigation, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific data and their statistical significance, if possible), and the principal conclusions. It should emphasize new and important aspects of the study or observations.

Below the abstract, authors should provide 3 to 10 **KEY WORDS** or short phrases that will assist indexers in cross-indexing the article and that may be published with the abstract. Terms from the medical subject headings (MeSH) list of Index Medicus should preferably be used.

**Introduction** should state the purpose of the article and summarize the rationale for the study or observation. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

In **METHODS**, describe your selection of the observational or experimental subjects (patients or laboratory animals, including controls) clearly. Identify the age, sex, and other important characteristics of the subjects. Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods; provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate their limitations. Precisely identify all drugs and chemicals used, including generic name, dose, and route of administration. Reports of randomized clinical trials should present information on all major study elements including the protocol (study population, interventions or exposures, outcomes, and the rationale for statistical analysis), assignment of interventions (methods of randomization, concealment of

allocation to treatment method of masking (blinding). Authors submitting review manuscripts are advised to include a section describing the methods used for locating, selecting, extracting, and synthesizing data.

In **Results** section, when data are summarized, specify the statistical methods used to analyze them. Present your results in a logical sequence in the text, tables, and illustrations. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Restrict tables and figures to those needed to explain the argument of the paper and to assess its support. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. Number tables consecutively in the order of their first citation in the text, and supply a brief title for each. Give each column a short or abbreviated heading. Place explanatory matter in footnotes, not in the heading. Identify statistical measures of variations such as standard deviation and standard error of the mean. Do not use internal horizontal and vertical rules. Be sure that each table is cited in the text. Figures should be professionally drawn and photographed. Supply raw data in separate page so that the figures may be redrawn. For x-ray films, and other material, send sharp, glossy, black-and-white photographic prints, usually 127 x 173 mm (5 x 7 in) but no larger than 203 x 254 mm (8 x 10 in).

In **DISCUSSION** emphasize the new and important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or the Results section. Include in the Discussion section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies.

Link the **Conclusions** with the goals of the study, but avoid unqualified statements and conclusions not completely supported by the data. State new hypotheses when warranted, but clearly label them as such. Recommendations, when appropriate, may be included.

**Acknowledgments** may go as an appendix to the text, one or more statements may specify (i) contributions that need acknowledging but do not justify authorship, such as general support by a departmental chair; (ii) acknowledgments of technical help; (iii) acknowledgments of financial and material support, which should specify the nature of the support.

**References** should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses. References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.

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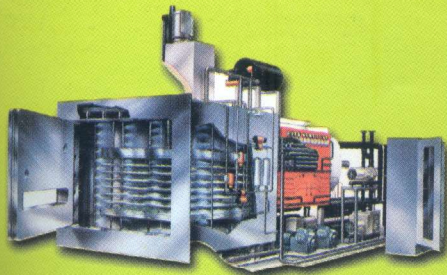
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