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Editorial

Extended Spectrum β-Lactamases Mediated Antibiotic Resistance

Emergence of resistance to β-lactam antibiotics began even before the first β-lactam, penicillin, was developed. The first β-lactamase was identified in *E coli* prior to the release of penicillin for use in medical practice.[1] The age of penicillin saw the rapid emergence of resistance in *S aureus* due to a plasmid-encoded penicillinase. This β-lactamase quickly spread to most clinical isolates of *S aureus* as well as other species of staphylococci and some members of Enterobacteriaceae.

Some members of Enterobacteriaceae (commonly, *E coli* and *K pneumoniae*) have TEM (The TEM-1 enzyme was originally found in a single strain of *E coli* isolated from a blood culture from a patient named Temoniera in Greece, hence the designation TEM) and SHV (sulphydryl variable) β-lactamases conferring resistance to various antibiotics.[2] A point mutation which alters the configuration around the active site of the TEM and SHV type enzymes has led to β-lactamases that are now known as "Extended Spectrum β-Lactamases" (ESBLs).[3]

Extended spectrum β-lactamases mediate resistance to extended spectrum (3rd generation) cephalosporins i.e. ceftazidime, ceftriaxone, cefotaxime and monobactams i.e. aztreonam but do not affect 2nd generation cephalosporins such as cephamycins i.e. cefoxitin and cefotetan or carbapenems i.e. meropenem, imipenem. Genes for ESBLs are distributed on large plasmids, which confer multiple drug resistance (e.g. aminoglycosides, tetracyclines, chloroamphenicol, and trimethoprim). They are inhibited by the β-lactamase inhibitors such as clavulanic acid, sulbactam, and tazobactam.[2] Majority of ESBLs producing strains are *K pneumoniae, K oxytoca* and *E coli*. Other organisms reported to harbor ESBLs include *Enterobacter spp., Citrobacter spp*; *Salmonella spp., S dysenteriae, M morganii, P mirabilis, S marcescens* and *P aeruginosa*.[4]

The first Klebsiella isolate with plasmid mediated resistance to broad spectrum cephalosporins was reported in the Federal Republic of Germany in 1983. Since then, there is an increased incidence of ESBLs producing bacteria worldwide including Bangladesh. Hospital outbreaks of ESBLs have been reported from the United States and other countries. Patients having infections caused by an ESBLs producing bacteria are at an increased risk of treatment failure with an extended-spectrum β-lactam antibiotic. Hospital outbreak of multidrug resistant Enterobacteriaceae are now being frequently caused by extended β-lactamases producers.

The problem of resistance mediated by ESBLs has been compounded by the lack of detection methods of ESBLs. One approach had been the disk-approximation method. This method works by the placement of cefuroxime and/or ceftazadime disks close (20 or 30 mm) to an amoxicillin-clavulanic disk on a plate inoculated with the test organism. Enhancement of the zone of inhibition or a so-called `ghost zone' between either of the cephalosporins disks and clavulanate containing disk indicates the presence of an ESBL. A modified three-dimensional susceptibility test method has also been used to recognize ESBLs. This method has reported a sensitivity of 95% for ESBLs detection compared to disk approximation test, which has a sensitivity of 79 %.[5, 6] The newest approach has been to use commercially available products of ESBLs detection. The Vitek

(bioMereiux Vitek, Hazelwood, Mo.) ESBLs test and an ESBLs screening Etest (AB Biodisk, Solna, Sweden) strip are based on recognition of a reduction in ceftazidime MICs in the presence of a fixed concentration (2 μg/ml) of clavulanic acid.[7]

There are very limited drugs to treat a patient with an ESBLs producing isolate. Although penicillins, cephalosporins, or aztreonam will appear to be susceptible in vitro, ESBLs producing *E coli* or *Klebsiella spp.* may be clinically resistant to therapy with these antibiotics. Therefore treatment of ESBLs positive strains should be carried out with carbapenem group of drugs as well as indiscriminate use of antibiotics especially 3rd generation cephalosporins and monobactams should be avoided. Infectious disease specialists are good resources when consultation for therapy of ESBLs producing organisms is needed.

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Original article

Maternal Mortality in Sylhet MAG Osmani Medical College Hospital : A 15 Years Experience

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ABSTRACT

A hospital based retrospective study was performed in the department of Obstetric and Gynaecology of Sylhet MAG Osmani Medical College and Hospital to analyse the causes maternal mortality from 1988 to 2002. Data were collected from hospital record room, statistical record book produced annually by the department of Obstetrics and Gynaecology and death registrar. There were 70,216 births and 1263 maternal deaths giving the incidence of maternal mortality rate of 1799/100,000 births. Direct causes were responsible for 86.90% and indirect causes were 13.10% for maternal deaths. Major causes of maternal death observed in the study were, PIH and eclampsia (27.55%), hemorrhage (14.33%), obstructed labour and rupture uterus (22.01%), sepsis (14.09 %), and unsafe abortion (6.50%). The reported maternal mortality rate is very high and efforts should be made to reduce maternal death, as most of the causes are preventable with the available resources and health facilities.

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INTRODUCTION

Maternal mortality is defined as "the death of the woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of pregnancy from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes."[1] Direct deaths are those resulting from obstetric complications of the pregnancy state (pregnancy, labour and puerperium).[1, 2] Indirect deaths are those resulting from previously existing disease that developed during pregnancy and which were not due to obstetric causes, but aggravated by pregnancy. Maternal mortality is a test of the status of women in the society.[3] It reflects a woman's basic health status in a country. In many developing and underdeveloped countries, complications of pregnancy and childbirth are the leading causes of death among the women of reproductive age. However, high-quality accessible health care has made maternal death a rare event in developed countries. Maternal Mortality Rate (MMR) of some countries is shown in table I. The high MMR

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Table -I : MMR of different countries

Country	MMR/100000 live birth (Year)
Somalia	1600 (1995)
Nigeria	1100 (1995)
Bangladesh	320 (2003)
India	440 (1995)
Sri-Lanka	40 (2002)
Saudia Arabia	23 (1995)
China	60 (1995)
Malaysia	39 (1995)
UK	10 (1995)
USA	12 (1995)
Singapore	09 (1995)

Sources

Human Development Reports; UNDP-2003
World Health Reports, Geneva : WHO; 1995:
Regional Reports- South East Asia, New Delhi : WHO; 1996.

reflects a poor interaction of social, infrastructural and available health facilities of a country. Poverty, illiteracy, repeated childbirth, poor provision and poor access to health services are key factors for high maternal death.

In Bangladesh, maternal mortality is one of the highest in the world with a rate of 320/100,000 live births. At present in our country only 16% of women give birth with the help of a skilled birth attendant (such as doctor, nurses or midwife) and about 84% give birth with the help of an untrained traditional birth attendant or a family member or with no help at all.[2] The chance of surviving after an obstetrical complication is excellent if a woman receives medical care in time. In addition to maternal death, at least 40% of women experience short or long-term health complications. Most maternal complications and death occur either during or shortly after delivery. An estimated 15% of these women develop potentially life-threatening problems.[3, 4] Therefore analysis of hospital data regarding maternal mortality will provide detailed information about the underlying cause of death and any avoidable factors, which can be used to formulate or/and to improve national guidelines for reduction maternal mortality. Institution based studies can also be used to see the actual picture of the catchments areas and the results may vary from locality to locality of a country. MMR of different referral institution shows the variation. (table II)

MATERIALS AND METHODS

This present retrospective study on maternal deaths over a period of fifteen years was carried out in the Department of Obstetric and Gynaecology, Sylhet MAG Osmani Medical College Hospital, a tertiary referral academic hospital, from 1988 to 2002. Total 70216 deliveries were conducted and 1263 maternal deaths were documented during the said period. The case files of all the maternal deaths

Table -II : Incidence of MMR in different institutions

Name of institution	Period	MMR(100,000 live birth)
Chittagong Medical College[5]	1978 - 1982	2600
Mymensingh Medical College[6]	1984 - 1988	2000
Sher-E-Bangla Medical College, Barisal[7]	1980 - 1986	3500
Eden Medical College, Kolkata[8]	1988	1400
District Hospital, Tanzania[9]	1984 - 1988	845
Castle Street Hospital for Women, Colombo[10]	1991 -1993	138
N Wadia Maternity Hospital, Bombay[11]	1980 - 1988	82
National University, Singapore	1986 - 1992	22.9

from 1988 to 2002 were collected from hospital record room and reviewed thoroughly for full details about parity, antenatal booking, age of the patient and causes of death etc. Total number of patients admitted for delivery in the hospital was collected from admission registrar and number and causes of death were from death registrar. All basic obstetric data of 1988-2002 as recorded in the hospital files were complied in annual reports through the entire study period. Published materials on these were also used, as an additional sources for current analysis.

RESULTS

Total numbers of deliveries in the Sylhet MAG Osmani Medical College from 1988 to 2002 were 70216. There were 1263 maternal deaths during the period. The maternal mortality rate was 1799 per 100,000 live birth. MMR was 2168/100,000 in 1988 and 1737/100,000 in 2002, so for the last 15 years MMR in Sylhet MAG Osmani Medical College Hospital has not been reduced. (table III)

Table - III : Year wise maternal death from 1988 - 2002 in Sylhet MAG Osmani Medical College, Hospital.

Year	Total delivery	Total maternal death	MMR
1988	3229	70	2168
1989	3095	69	2229
1990	3210	72	2242
1991	2922	64	2190
1992	3105	65	2094
1993	3309	77	2326
1994	4380	70	1598
1995	4961	67	1350
1996	5430	100	1842
1997	5200	80	1807
1998	5229	95	1816
1999	5117	89	1739
2000	6279	114	1815
2001	7787	110	1412
2002	6963	121	1737
Total	**70216**	**1263**	**1799**

Table - IV : Causes of maternal death

Direct causes	No	%
Haemorrhage	181	14.33
PIH & eclampsia	348	27.55
Sepsis	178	14.09
Obs labour & rupture uterus	278	22.01
Unsafe abortion	82	6.50
Ectopic gestation	17	1.34
DIC	14	1.10
Total	**1098**	**86.92**
Indirect causes	**No**	**%**
Anaemia	67	05.30
Viral hepatitis	38	03.00
Heart disease	28	02.20
Anaesthetic hazards	21	01.65
Renal failure	11	00.87
Total	**165**	**13.02**

Table IV shows causes of maternal mortality of the present series. Direct cause of maternal death was 86.90% and indirect cause was 13.10%. PIH and eclampsia was the most common cause of maternal mortality accounting for 27.55% and the second leading cause of death was obstructed labour and rupture uterus accounting for 22.01% and haemor-

Table - V : Maternal deaths in relation to age

Age in years	No of death (n=1263)	Percentage
< 20	136	10.77
21 - 30	863	68.33
> 30	264	20.90

Table - VI : Maternal deaths in relation to parity

Parity	No of patient (n=1263)	Percentage
Primi-gravida	432	34.20
2 - 4 gravida	626	49.56
> 5	205	16.23

rhage accounting for 14.37%. Among the indirect causes, anaemia (5.30%) was leading cause of maternal death.

Table - VII : Maternal death in relation to patients inhabitation

Area	No of death	Percentage
Rural	961	76.09
Urban	302	23.91

Table - VIII : ANC service received

Service provider	No of patients	Percentage
MBBS doctor	201	15.91
Satellite clinic	171	13.54
FWC	170	13.46
Health complex	126	09.98
Village doctors	221	17.50
No ANC	374	29.61

from different levels of health service provider but not on a regular basis. Table VIII illustrates the facts. Table IX showed the avoidable factors in maternal death. Delay in reaching hospital was the most common avoidable factor (40.30%) which was due to poor communtication and/or due to lack of economic supports. Among the hospital deaths, 35 patients (2.77%) died within one hour of arrival though treatment started immediately. For most of the patients enough time was available to manage the case. The common barriers that contribute to poor quality care include, lack of drugs and supplies. The staff of the hospital are poorly supervised, underpaid and over worked. From 3 PM to 8 AM the whole hospital remains under the care of junior doctors (interns, medical officer and asstt registrar) and most of the emergency patients arrived during this hours.

DISCUSSION

The maternal mortality in Sylhet MAG Osmani Medical College, Hospital has been found to be 1799 per 100,000 births. A similar high rate is found in other studies among various medical college hospitals of Bangladesh (table II). The rate is alarmingly high when compared with the maternal mortality of other countries (table I). Though in other studies haemorrhage remains the number one cause of maternal death here PIH and eclampsia and obstructed labour and rupture uterus remained the commonest causes, representing poor anta-natal care, reluc-

Table - X : Avoidable factors in maternal death.

Factors	No of patients	Percentage
Delay in making decision to come hospital	394	31.20
Delay in reaching hospital (poor communication, far way, shortage of money)	509	40.30
Late referral of patients from rural areas	89	7.05
Delay in starting treatment	101	8.00
Non availability of blood	75	5.94
Non availability of drugs	47	3.71
Trial for VD where LSCS was indicated	27	2.14
Anaesthetic complications	21	1.66

Most of the maternal death (68.33%) was from 21 to 30 years age group. (table V) In respect of parity, multipara mothers (2-4 gravida) were highly affected (49.56%) and grand multiparas were least (16.23%) (Table VI). Table VII showed that the most of the maternal death (76.09%) was seen among the mothers from rural areas and urban areas contributed only 23.91%.

About 70% of patients received ANC services

tant to receive the existing health care facilities, late referrals by the local village practitioners and ignorance and also due to carelessness, illiteracy, social and religious taboos. The percentage of women who seek ante-natal care at least once is 63% in Africa; 65% in Asia; 73% in Latin America and in Bangladesh it is only around 29%.[11, 12] These deaths could have been prevented by proper antenatal care and early hospitalization. Though haemorrhage remains the leading cause of maternal mortality nationally but in this study by providing effective blood transfusion services haemorrhage was responsible for only 14.33 % (Sandhani played very active and effective role on making blood available).

We found an almost five times higher MMR in our hospital dated than in national MMR (1799 versus 320). There is therefore a great discrepancy between MMR in hospitals and in the community in our country. The reasons for higher rate of MMR is perhaps the fact that the medical college hospital acts as a referral center as well as catchments areas of vast population and which deals with complicated, high risk, moribund, neglected, poor group and emergency cases. In this series, we found that during the last seven years MMR has improved in the medical college, because of improvement of service quality in the hospital, availability of Emergency Obstetrical Care (EOC) trained doctor in health complexes and improvement and of obstetrical service in government and private level in the district head quarter.

A large population of these women died in hospital were the emergency admissions had intended to give birth at home and were transported to hospital when they developed a life threatening condition. Many of the findings reported here are quite consistent with other developing countries. Deaths from eclampsia were common in primi and in the older women's group. Rupture uterus were common in grand multipara and with H/O previous LSCS. The observed association of prolonged obstructed labour and intrapartum sepsis leading to death of the mother in many cases. Direct maternal mortalities accounted for 86.9% and indirect causes accounted for 13.1% of the total death, whereas in Singapore direct cause 11% and indirect cause 56% and incidental cause for 33%. Women's death due to complications of pregnancy and childbirth are strongly associated with inadequate medical care at the time of delivery.[13, 14, 15]

WHO estimates that 13 percent maternal death results from complications of abortion. These complications arise from unsafe procedures. In the present study, maternal death from unsafe abortion is 6.50%. In 1987, maternal death from eclampsia was 41.15% and now it coming down to 27.55%. In our country only about 9% of the total deliveries take place in the hospitals while 91% take place at home of which 80% birth were conducted by relatives, untrained attendents, only 16% by trained health personnel. Even in Sri-Lanka, 95 % deliveries take place in hospital. Nevertheless, we cannot provide all hospital delivery. Therefore, we have to train TBA and other health care service provider at rural areas to recognize high-risk cases and to advise and motivate the patients to attend the nearby hospital.[16, 17,18]

Bangladesh government has provided ANC services to the rural people through THC, MCH, FWC and satellite clinics and by NGO'S at grass root level of the rural community. Results are started to come. One parameter is the incidence of rupture uterus was 1 in 88 in 1987, now in 2002 incidence is 1 in 183. Rate of LSCS has increased from 26.13% (1992) to 37.12% (2002). Ten years back eclampsia was a rare indication for LSCS but now a day's incidence of LSCS for eclampsia is about 7%. [6, 19, 20, 21]

CONCLUSION

Analysis of hospital data provided detailed information about the underlying cause of death and substandard care factors, which can be used to reduce maternal mortality. However, despite many major achievements in health, a large number of women in our region continue to die from preventable causes related to maternity. The maternal death in the South-East Asia Region is the highest in the world and accounts for 40% of all global maternal deaths. Obviously, reducing maternal death requires a sustained effort from communities, health institutions

and health workers and most important, perhaps, is the political leaders to improve the condition.

At each health complexes, facilities for caesarean section should be provided. In some health complexes caesarean section and EOC has all ready been started, giving good results. Obstetrician and gynaecologist along with anaesthetists and arrangement for blood transfusion should be provided at all health complexes.

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Original article

Factors Related to Infertility Among the Selected Couples

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ABSTRACT

A retrospective study was conducted on 87 couples those attended the in-vitro fertilization centre of Jahurul Islam Medical College Hospital from March 1999 to February 2000 to assess the factors related to infertility. The mean duration of marriage was 7.79 years and the mean age at marriage of wives was 23.28 years. Out of 87 female, 59(67.81%) had a history of PID, 27(31.03%) had a history of MR and 16 (59.26%), out of these 27 MR patients had a history of complication. MR complication was highest (48.15%) among the wives those education level was within 1-5 class. PID was most prevalent (64.28%) in wives those got married in between 21 to 30 years. Tubal block was present in 15 infertile female, out of them 5 (33.33%) had a history of MR complications and 8 (53.33%) had a history of post abortal complications. 86.2% (75) of the husbands had the volume of ejaculate ranged between 1-3 ml. 13(14.94%) had azoospermia, The morphology of the sperms was found satisfactory in 57(65.52%) husbands. 40%-70% spermatozoa were motile in 45 (51.72%) husbands and in 29 (33.33%) specimens, motility of sperm was less than 40%. The male and female infertility rate were 34.48% and 51.72% respectively.

[Jalalabad Medical Journal 2005; 2(1) : 11-6]

INTRODUCTION

Since the beginning of the recorded history, the human race has placed emphases on fertility. In the Judeo-Christian tradition, the importance of procreation is inherent in man's very creation. Nothing more vividly demonstrates the importance of fertility to the individual than the reaction by and to those who don't have children.[1] In 1990, Fathalla expanded the concepts of World Health Organization's (WHO) definition of health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infertility'. If we criticize this definition of health, it is obvious that infertile couple is suffering from a condition which is away from the normal health and thus requires attention.[2]

It is estimated that 8 to 12% of all couples experience some forms of infertility during their reproductive lives, which affecting a some 50 to 80 million peoples. However, the levels of underlying causes and contributing factors of infertility clearly vary from one country to another and even from one locality to another.[1, 3] Although infertility is not a disease in the classical sense, it becomes an extreme-

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ly important a personal concern for many couples and a significant social problem in a community. The 22nd conference of the Council for International Organizations of the Medical Sciences in Bangkok in June 1997, declared, "Infertility is a problem with very definite physiological, psychological and social implications. The stigma of infertility often leads to mental disharmony, divorce and ostracism. The suffering experienced by infertile couple is very real." [4]

In 1978, WHO established a task force on the diagnosis and treatment of infertility because infertility remains a health care problem by lack of standard definition, deficiency of understanding of etiological factors, quality diagnostic procedures and therapeutic measures of doubtful value.[5] In Bangladesh information or studies regarding to understand the magnitude of the problem are sparse. However, according to WHO survey, infertility rate was found 6.9%.[3] A study was conducted by Bangladesh Institute of Research for Promotion of Essential and Reproductive Health and Technologies (BIRPERHT) from February to April 1996 revealed that primary infertility rate of was 3.2% and secondary infertility rate was 2.9%.[6]

Infertility has been neglected as both a health problem and a subject for social science in South Asia. The general thrust of both programs and researches has been on high fertility and its regulation rather than on understanding the context of infertility, its causes and consequences. Though infertility is possibly a much bigger problem in this country; unfortunately no systematic effort has been taken so far to treat infertility on a systemic and scientific way. A cross sectional study on infertile couples may throw some light for further research in this field and also will strike the policy makers of Bangladesh to include matters of infertile couples practically in family planning for making it more successful.

MATERIALS AND METHODS

This retrospective study was conducted on 87 infertile couples those were attended the infertility management and *in-vitro* fertilization (IVF) centre of Jahurul Islam Medical College Hospital, Bajitpur from March 1999 to February 2000. Purposive type of sampling method was followed to collect the data and data were collected from the treatment records of the couples using a checklist. Their age, education, post obstetric and gynecologic history, age of marriage in case of wives, details of semen analysis, history of MR and other gynecologic procedure and their complication were studied and tabulated.

RESULTS

Age : Among the females, 60 (68.96%) wives were in 20-29 yrs age group. On the other hand, among the males, 51 (58.62%) were in the 20-29 yrs age group. The mean age of male and female was 29.48 yrs and 26.72 yrs respectively. Table I shows

Table-I: Distribution of couples according to their age

Age group	Male		Female	
(yrs)	No	%	No	%
<20	2	2.3%	6	6.90%
20-29	51	58.62%	60	68.97%
30-40	27	31.03%	21	24.13%
>40	7	8.05%	—	—
Total	**87**	**100.00%**	**87**	**100.00%**

Table II : Education level of couples

Education	Male		Female	
level	No	%	No	%
1-5 class	3	3.45	3	3.45
6- 10 class	17	19.54	20	22.99
SSC completed	4	4.60	18	20.69
College level	17	19.54	28	32.18
Graduation	30	34.48	12	13.79
Masters	16	18.39	6	6.90
Total	**87**	**100.00**	**87**	**100.00**

Table-III : Distribution of wives at the age of marriage

Age	No of wives	percentage
Less than 20 yr	23	26.45%
21-30 yrs	56	64.36
31-40 yrs	8	9.19

the age distribution of the couples.

Education : Husbands were more educated than wives. Among the males, 30 (34.48%) had completed graduation. On the other hand, 28 (32.18%) wives were educated up to college level. Table II illustrate the fact.

Age of wives at the time of marriage: 23 (26.43%) wives were less than 20 years old at the time of marriage, 56 (64.36%) were in the age group of 21-30 years, 8 (9.19%) were within the age group of 31 -40 years. The mean age at marriage of the female respondents was 23.28 ±5.74 years. The mean duration of marriage was 7.79±4.42 years. (Table III)

Past obstetric history : 25 (28.79%) out of 87 had a past obstetric history. From 25, pregnancy occurs once in 18 women, twice in 7 women. Stillbirth occurred in case of 2 women, live birth in 6

Figure-1 : Distribution of wives according to gynecological problems

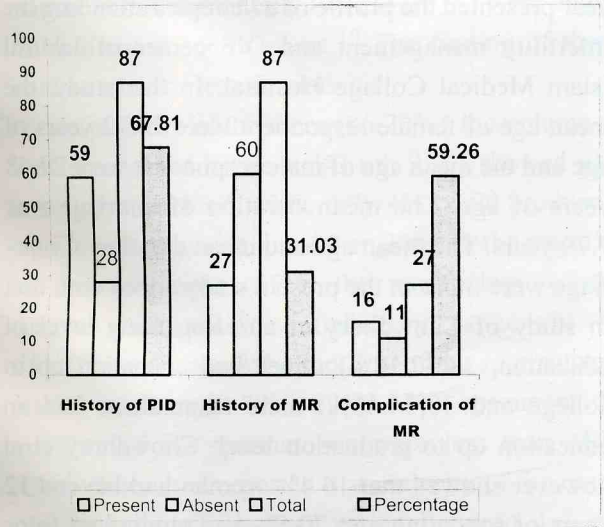


Table-IV : Incident of PID in relation to the age at marriage

Age at marriage	Total number	Number of PID	Percentage
<20 yrs	23	19	82.60
21-30 yrs	56	35	64.28
31-40 yrs	8	5	62.5
Total	**87**	**59**	

Table-V : Distribution of MR complication by the level of education of wives

Level of education (wives)	No of MR complication	Percentage
1-5 class	10	48.15
6-10 class	5	18.51
SSC	2	7.40
HSC	4	14.81
Graduate	6	11.11
Total	**27**	**100**

Table-VI : Volume of ejaculate among the husbands

Volume	No of husband	Percentage
Less than 1 ml	8	9.20%
1-3 ml	75	86.20%
More than 3 ml	4	4.60%

and history of ectopic pregnancy found in 2 women. Out of 13 cases of abortion, 5(38.46) had a history of post abortal complication.

Gynecological problems: Out of 87 female respondents 59 (67.81%) had a history of PID and 27 (31.03%) had a history of MR. Among the MR cases, complications were present in 16 (59.26%) wives. (Figure: 1)

Table IV shows the distribution of PID in relation to age of marriage. Out of 87 female respon-

Table-VII : Sperm count in semen analysis

Sperm count	Number	Percentage
> 60 million per ml	24	27.58
20-60 million per ml	27	31.03
Less than 20 million per ml	23	26.43
Azoospermia	13	14.94
Total	**87**	**100**

Table-VIII : Morphology of sperm

Sperm Morphology	Number	Percentage
Normal more than 70%	6	6.90%
Normal 40-70%	57	65.52%
Normal less than 40%	24	27.58%

Table-IX : Motility of sperm among the husband

Sperm Motility	Number	Percentage
Non motile	2	2.30%
Less than 40% motile	29	33.33%
40-70% motile	45	51.72%
More 70% motile	11	12.64%

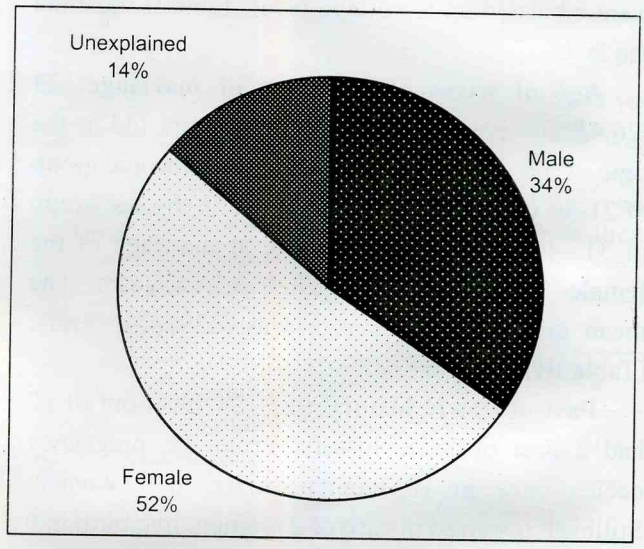
dents, 23 were married below 20 years of age. Almost all (19) of them developed PID, 35 (64.28%) out of 56 in between 21-30 years of age at marriage developed PID.

Percentage of MR complication was higher (48.15%) in the group whose level of education was within 1-5 class (Table V) Tubal block was present in 15 cases. Out of 15, 5(33.33%) had a history of MR complication and 8(53.33%) had a history of post abortal complication.

Semen analysis : Table VI shows that 86.2% (75) of the husbands had the volume of ejaculate ranged between 1-3 ml. 13 (14.94%) males had azoospermia. 23 (26.43%) had a sperm count less then 20 million per ml, 27 (31.03%) had a sperm within 20-60 million per ml and 24 (27.58%) had sperm count above 6o million per ml. (Table: VII) The morphology of the sperms was found satisfactory in 57(65.52%) husbands (Table-VIII). In 45 (51.72%) semen specimens, 40%-70% spermatozoa were motile and in 29 (33.33%) specimens, less than 40% spermatozoa were motile (Table: IX)

Out of 87 couples, 30 (34.48%) male and 45 (51.71%) women were infertile and the ratio between male and female was 0.66:1 (Figure: 2)

Figure-2: Distribution of respondents by types of Infertility



DISCUSSION

The study was conducted over a period of one year presented the profile of 87 couples attending the infertility management and IVF center of Jahurul Islam Medical Collage Hospital. In this study, the mean age of female respondent were 26.72 years of age and the mean age of male respondent were 29.48 years of age. The mean duration of marriage was 7.79 years. The mean age and mean duration of marriage were more in the present study coped with that in study of Chowdhury et al.[7] Regarding level of education, 28(32.18%) wives had education up to college and 30(34.48%) male respondents had an education up to graduation level. Chowdhury et at however showed that 16.4% woman had beyond 12 years of schooling and 70.5% had studied up to or

less than 10th grade.[7] MR complications were more prevalent in the wives those had education level up to primary level. This may be due to ignorance about health education particularly reproductive health, which is related to educational status.

Among the 87 female respondents 59 (67.81%) had a history of PID and 27 (31.03%) had a history of MR. Out of 27, 16(59.26%) had a history of MR complication. Tubal block was present in 5 (31.25%) MR complicated patients and 8(61.53%) in the post-abortal complicated female. This finding showed that tubal block was more common for those who had a history of post abortal complication. Vida and Ranadive,[8] reported that 4 out of 23 (17.3%) showed tubal block. Another study by Sciarra JJ showed that 49% of the African couples and 11-15% of other couples in other parts of the world had infectious tubal disease.[9] Tubal block was more in those had a post abortal complication (61.53%) than that of MR complication patients (31.28%). It was might due to the facts that post abortal complications influence PID by increasing the chance of tubal inflammation and adhesion.

In this series, 13 (14.94%) husbands were azoospermic, 23 (26.43%) had sperm count less than 20 million/ml, 24(27.58%) had sperm count above 60 million/ml. Study by Chowdhury et al showed that 65 (20%) was azoospermic, 29 (8.9%) had a count less than 10 million/ml, 121(37.20 %) had within 10-60 million/ml, 108 (33.21 %) were above 60 million/ml sperm count.[10] The finding of these studies more or less similar.

In majority of the cases (86.20%), the volume of ejaculate varied between 1-3 ml. 9.2% showed volume less than 1 ml, while only 4% could produce a specimen containing more than 3 ml. In the majority of the specimens (65%) the morphology of the sperms was within satisfactory range. In 45 (51.72%) specimens the motility of the spermatozoa varied between 40-70%, 29(33.33%) specimens the motility of the spermatozoa were less than 40%. Chowdhury et al reported that majority of the cases, the volume of ejaculate varied between 1-3 ml. Around 8.6% showed volume less than 1 ml, while only 3% could produce a specimen containing more than 3 ml, a few persons produced only a few drops of semen. In 173 specimens the motility of the spermatozoa, varied between 40-70%. 42 specimens showed motility in more than 70% of the spermatozoa, while in 104, motility were seen in less than 40% of the sperms.[10]

This study showed that the ratio of male and female infertility among the couples was 0.66:1. Out of 87 couples, 30(34.48%) male was infertile and 45(51.71 %) woman was infertile. Unexplained infertility was 13.86%. A study by Seneviratne and Gunaratne showed that the male and female factors were 26. 1% and 45.6% respectively.[11] Collins and Crosignani reported that unexplained infertility ranged from 8 to 37%.[12]

CONCLUSION

In a society overburdened with a very high population growth rate the light of the infertile couple is very likely to be ignored. The basic aim of any good family planning program would be to ensure the development of a balanced family and must have the treatment of infertile couples as one of its important component. As the number of patient studied was small and it was a selected hospital based study, no firm conclusion could be drawn from this study. The information collected needs verification by bigger studies on this subject. The main aim of this study was to find out the factors related to infertility among the couples attending infertility management and IVF center of Jahurul Islam Medical College Hospital and to get some baseline data from which it will be possible to pinpoint the probable causes of infertility and to design appropriate strategy for their cure as far as possible. The study findings suggest that gynecological and obstetrical problems were common in the infertile wives. Out of 87 female respondents 59 (67.81%) had a history of PID. PID was common who had age at marriage in the group of less than 20 years. MR complications were more common in those groups who had an education level

between 1-5 classes.

The information gathered in this study could definitely be instructive in the future of action in the development of a program for the management of infertility cases. No systemic study has been carried out on infertility in Bangladesh. There is no relevant data on the incidence and prevalence of infertility in Bangladesh. So it is essential to encourage researcher to conduct several in-depth studies to determine the load of infertility in the society. It is necessary to cover a large segment of population with varying characteristic. This issue is not possible to address in the present study, and warrants further elucidation in future. However, some recommendations are could be made. All infertile couples must be detected to include them in family planning to establish effective and systemic treatments for infertility. Systemic sex education should be given to prevent STI which occur due to misuse of sex, causing infertility. Establishment of infertility centers in different levels to assist in infertile women by giving them all available information and realistic counseling. Social attitude towards infertile couples should be changed. They should be motivated to receive a regular and sincere treatment for infertility.

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JALALABAD MEDICAL JOURNAL

Original article

Nutritional Status of Under Six Children in Bangladesh :
Evidence based from nutrition survey of Bangladesh 1995-96

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ABSTRACT

A cross sectional study was conducted in different urban and rural spot of Bangladesh to assess the nutritional status of under six children. Nutritional status was determined anthropometrically and was compared with that of NCHS standard. Prevalence of malnutrition in terms of underweight (W/H) was 64.2% whereas that of stunting (H/A) was and wasting (W/H) were 60.4% and 17% respectively. There is no considerable changes have been seen in nutritional status under six children in our country since the first National Nutrition Survey conducted in 1962-64.

[Jalalabad Medical Journal 2005; 2(1) : 17-9]

INTRODUCTION

Malnutrition is one of the catastrophes on human life affecting millions of lives worldwide. This has been recognized as one of the major cause of childhood morbidity and mortality in developing countries like Bangladesh. It is yet continuing to be a big threat to child health and child survival. The existing situation of Bangladesh[1, 2] reveals that the extent and magnitude of undernutrition is alarming. Undernutrition is not only the major health problem, but also detrimental to overall national and socioeconomic development of the country. Thus it is a great hindrance to achieve the human resource potential. Literature review[3, 4] revealed that nutritionists are more concerned with physical retardation mostly because malnourished children are much more vulnerable than malnourished adults as far as their capacities to cope with morbidity are concerned. Anthropometric measurements which can help determine the magnitude of stunting, underweight and wasting, are of great importance because these clearly highlight the need for appropriate intervention to help the individual to escape from such disorders.[3, 4] The present study was designed to determine the extent of nutritional status of under six children in Bangladesh.

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MATERIALS AND METHODS

The study was conducted all over the Bangladesh in both rural and urban areas during the period of 1995-96. 1447 households were selected from 32 villages and 9 urban spots. The aim was to find a reasonable estimate of nutritional status of

Bangladeshi children (6-71 months). Dietary intake (24 hours recall method) was recorded before clinical and anthropometric assessment. Anthropometric measurements such as height, weight and mid upper arm circumference were recorded by trained assistants under the supervision of a physician. A level type scale, standardized daily was used for weight determinations. Height was obtained using a special wooden frame on a platform with as sliding head piece. All the measurements were recorded on a structured questionnaire and forms. Evidence of specific nutritional deficiency, socio-economic enumerator including family structure, landholding, literacy, income and expenditure were recorded. Environmental factors such as sources of drinking water, toilet facilities and arrangements, past illness were also included in the study. Anthropometric data were analyzed by computer NCHS/CDC anthropometric software package.

Table I : Nutritional status of children aged 6-71 months in Bangladesh using z-score

Nutritional status	% of children
Stunted and Underweight	
Normal	26.6
Malnourished	73.4
Stunted but not underweight	9.2
Underweight but not stunted	13.0
Both underweight and stunted	51.2
Stunting and wasting	
Normal	32.9
Malnourished	67.1
Stunted but not wasted	50.2
Wasted but not stunted	6.7
Both stunted and wasted	10.2
Total stunted	60.4
Total wasted	64.2
Total underweight	17.0

RESULTS

Total 1153 children of both sexes aged between 6-71 months were studied from the selected areas of Bangladesh. Nutritional status estimated by anthropometric measurement is presented in table I and table II. While considering stunting (H/A) and underweight (W/A) 51.2% were both stunted and underweight which indicates that they were suffering from chronic malnutrition for prolonged period and 13% were only underweight and 9.2% were only stunted. When considering stunting and wasting (W/H), only 10.2% were both stunted and wasted indicating current acute on chronic malnutrition and 50.2% and 6.7% were stunted and wasted respectively. Considering all together 64.2% of the children was underweight whereas 60.4% and 17.0% were stunted and wasted respectively.

Table II : Distribution of nutritional status of children aged 6-71 months by height for age, weight for age, weight for height and weight for age as z-score by sex (percent)

Indicators	−3.00 and below	−2.99 to −2.00	−1.99 to −1.00	−0.99 to +0.99	+1.00 to +1.99	+2.00 and above
Ht for age	29.43 (334)	30.93 (351)	24.41 (277)	14.36 (163)	0.79 (9)	0.08 (1)
Wt for ht	2.29 (26)	14.71 (167)	45.46 (516)	36.04 (409)	0.97 (11)	0.53 (6)
Wt for age	24.76 (281)	39.47 (449)	25.55 (290)	10.13 (115)	0.08 (1)	—

DISCUSSION

The present study represents the nutritional status of under six children in Bangladesh. Prevalence rate of undernutrition was lower than that reported by Bangladesh Bureau of Statistics (BBS), 1992.[2] Taking both height for age (stunting) and weight for height (wasting) in consideration, 55% of the children could be classified as 'nutritionally normal', whereas the percentage of normal children reported by BBS (1992) is 31%.[2] Percent prevalence of underweight (W/A) is lower (37.8%) than that reported (6 8.3%) in BBS (1992). Rate of stunting (H/A) is also lower (26.8%) as compared with the figure reported by Nutrition Survey of Bangladesh 1983[1] and BBS (1992)[2] in which the rate of stunting was reported to be 57% and 64.2% respectively. But the prevalence rate of wasting (23.4%) is slightly higher than that reported in BBS 1992 and Nutrition Survey in rural Bangladesh, 1983.[1, 2]

Bangladesh has undergone tremendous demographic, economic and social changes during the last three decades. Level of national output have gone up along with improvements in infrastructural facilities, technological changes in the productive system, rapid urbanization, changes in the pattern in the employment in various activities since the First National Nutrition Survey conducted in 1962-64.[5] The objective of the present study was to investigate the nutritional status of under six children with respect to socioeconomic development. However the cause of no significant changes has been seen in the nutritional status of the children remains unclear. So, further study should be undertaken to collect dependable information on the nutritional intake of the people of Bangladesh and also to assess the changes which have been taken place in this area during the last few decades.

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JALALABAD MEDICAL JOURNAL

Original article

Groundwater Arsenic Concentration in a Selected Area of Bangladesh

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ABSTRACT

Arsenic contamination of groundwater is a major public health problem in Bangladesh and day by day there are newer areas and newer tubewells are affected all over the country. To assess the concentration of arsenic with depth of tubewells (50), this descriptive cross-sectional study was conducted in some villages around Moulvibazar town from June to December 2004. The study revealed that the range of arsenic concentration in tubewells were mainly from 0.03-0.06 mg/L. 6% tubewells were below the WHO accepted level of contamination (up to 0.01mg/L). However, according to Bangladeshi standard (up to 0.05 mg/L), 80 % of tubewells were safe. The depth of contaminated tubewells were varied from 110 to 190 feet and the mean depth of was 137 feet. This study concluded that majority tubewells of study areas exceeded the permissible limit of arsenic concentration in drinking water accepted by WHO and as a rule of arsenic contamination, the concentration of arsenic may be increased day by day depending on the duration of use. Therefore, concentration of arsenic in borderline contaminated tubewells should be reevaluated periodically.

[Jalalabad Medical Journal 2005; 2(1) : 20-3]

NTRODUCTION

Arsenic is a metalloid which is brittle in nature and grey or tin white in colour occurs naturally in all environmental media- air, soil and water and is usually present in the form of compounds with sulfur and many other metals (copper, lead, zinc, iron etc.). Chemically arsenic is mainly of two types, viz. inorganic and organic. The inorganic arsenical is again divided into two types; the trivalent form is arsenite (AsIII) and the pentavalent form is arsenate (AsV). AsIII is more toxic than AsV.[1] Usually, there are four types of arsenic compounds that are exist in water, in inorganic form: AsIII and AsV and in organic forms; methyl arsenic acid (MMA), dimethyl arsenic acid (DMA). The majority of arsenic in surface water is as AsV and in groundwater of anoxic wells as AsIII.[2] In oxygenated soil, inorganic arsenic is present in the pentavalent form. However under reducing conditions, it may exist in the trivalent form.[2]

According to ore genesis, arsenic originates as a deposit formed at great depth and at the temperature of 300-500° C. In this zone chalcopyrite and arsenopyite minerals are commonly formed. In different geological process that includes weathering, erosion, transportation and sedimentation, along

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with other elements, the arsenic minerals release in the soil and in the rock bodies.[3] Due to subsurface groundwater flow, the arsenic is used to move and concentration of that element may not be increased. Due to 'grow more food', urbanization, industrialization and populous growth, groundwater in recent years has extensively been utilized by installation of innumerable deep and sallow tubewells. It is postulated that, due to over extraction of groundwater and as water being drawn by negative suction force, air present in the soil (in the of filtration) comes down to the groundwater, reduce the insoluble arsenic ore to soluble arsenic which is colourless and tasteless.[4]

In Bangladesh, more than 90% of the people, irrespective of urban or rural, are dependent on water supply from the groundwater sources. In recent times, the country is facing a real catastrophe due to arsenic contamination in groundwater and people are suffering from chronic arsenic toxicity. According to the World Health Organization (WHO), the safe limit of arsenic in drinking water is 0.01mg/L However, WHO set the maximum permissible limit of arsenic for Bangladesh as 0.05 mg/L.[5] Sophisticated laboratory facilities are required to accurately detect arsenic in groundwater. Unfortunately very limited number of facilities is available in Bangladesh. Moreover, it is highly expensive and time consuming. Therefore field kit method become popular for measuring arsenic concentration in groundwater that was designed to identify the presence of arsenic with Bangladeshi standard.[6] Water samples from many Bangladeshi tubewells have the concentrations exceeding WHO's value, with extreme concentration greater than 500 mg/L.[7]

The specimen of arsenic contaminated water in Bangladesh was first analyzed in 1993. Since then Department Public Health and Engineering (DPHE) and other organization started working on the groundwater arsenic contamination issue. Identification of contaminated tubewells was the first job of these organizations. According to British Geological Survey in 1999 (BGS), 61 out of 64 districts have arsenic contaminated groundwater.[7] The badly affected districts are Brahmanbaria, Comilla, Feni, Narayangonj, Sariatpur, Narail, Satkhira and Nawabgonj and contamination of Moulvibazar district was least (1-25%).[7] However, according to School of Environmental studies, Jadavpur University, Kolkata and Dhaka community Hospital, Bangladesh (SOES-DCH) in 2000, seven districts including Moulvibazar were completely safe and other seven districts had arsenic concentration above the WHO standard but not above the Bangladeshi standard.[8] To establish the actual picture, an epidemiological survey on arsenic concentration of tubewells in an area not only shows the magnitude of the problem but also validate the previous obtained data. Moreover, during installation of new tubewells, the depth of contamination could be utilized by the respective authority for drawing underground water from that specific level which is free from arsenic.

METHODS AND MATERIALS

This descriptive cross-sectional study was carried out in the department of Community Medicine of Jalalabad Ragib Rabeya-Medical College, Sylhet in three union of Moulvibazar (Kanakpur, Amtoil and Chadnighat) district from July to December 2004. Total 50 tubewells that were randomly selected from the villages. A list of tubewells and users was collected prior to data collection. The investigator took direct interview by asking the questions according to the questionnaire. The depth of the tubewells was recorded as mentioned by the respondent. Arsenic concentration of tubewells was measured by the commercially available arsenic measuring field kit. (Merk, Germany)

RESULTS

50 tubewells were randomly selected in the study area. Among the studied tubewells, 94% of had arsenic concentration above the maximum permissible level (>0.01 mg/L) of fixed by WHO. (Table I) However, according to Bangladeshi standard 80% tubewells are safe.

Table II shows the depth of studied tubewells.

Table: I Distribution of tubewell according to the level of arsenic concentration

Arsenic conc (mg/L)	No of tube well	Percentage
Up to 0.01 (WHO standard)	03	06%
Up to 0.02 -0.05 (Bangladesh standard)	37	74%
>0.05 (> Bangladesh standard)	10	20%
Total	**50**	**100%**

Table: II Distribution of tubewell by depth

Depth of tube well (ft)	No of tube well	Percentage	Mean arsenic conc (mg/L)
110-150	13	26%	0.06
151-190	22	44%	0.05
>190	15	30%	0.02
Total-	**50**	**100**	**0.04**

The data was collected from the users of tubewells and we have to rely on the verbal statement of the users. 44% of tubewell were within 150-190 ft and the mean depth was 137 ft. Highest mean concentration of arsenic (0.06 mg/L) was found in tubewell depth ranged from 110-150 ft.

DISCUSSION

The study revealed that the majority of tubewell water (74%) contains >0.01-0.05 mg/L of arsenic, which is above level fixed by WHO and only 20% tubewells were unsafe according to Bangladeshi standard (>0.05 mg/L). The arsenic concentration of the study area is much lower than the other arsenic affected parts of Bangladesh. In affected areas, the concentration was far above the Bangladeshi standard and in some region it exceeds 500 mg/L. This result supported the results of previous study by BGS[7] where it was stated that 2-25 % of tubewell of Moulvibazar district had contamination. However the results disagree with the results of SOES-DCH[8] as they mentioned Moulvibazar district is free from arsenic contamination. The difference in results may be due to the rule of arsenic contamination; the concentration of arsenic in groundwater may be increased day by day depending on the duration of use.[9] The safe tubewells according to Bangladeshi standard are not safe according to WHO's standard and potential health hazards may occur following prolonged consumption of traditional safe water. The study also revealed that most of the contaminated tubewell lie within the depth of 150-190 ft and highest contamination was found in 110-150 ft which reveals that most arsenic contamination is present in sallow tubewell (>200 ft) and the results are in corresponding with the results of BGS and SOES-DCH studies.[7, 8]

CONCLUSION

Contamination of tubewell water with arsenic is one of the most tragic natural calamities in the human history. Its toxic effects on human health manifest with certain symptoms and signs, especially skin manifestation through drinking contaminated tubewell water. The mortality and morbidity due to arsenic toxicity occurring through drinking water can be reduced to large extent by applying preventive measures like alternate safe water or introduction of arsenic purifying filters and providing health education on basic facts of arsenic toxicity to the people.

A few years ago, we had no idea about the ill effects of tubewell water consumption. We were drinking it as safe and wholesome. But now, it is clear that safe water is always safe and may be harmful and dangerous to human health, if it is contaminated with undue substances like arsenic. Similarly, ignoring the WHO standard, Bangladesh is following its own standard regarding arsenic contamination of drinking water, which may have serious health problems in coming days. On the basis of arsenic

contamination of tubewell water, the following recommendations have been made. 1. Alternate water sources must be made available 2. Measures should be taken to create awareness among general mass to avoid use of arsenic contaminated water. 3. Water testing facilities in or near affected area must make available for constant watch and certification of the water sources regarding arsenic contamination. 4. In suspected areas, groundwater should be checked at regular intervals regarding arsenic contamination. 5. Rethinking for establishing the acceptable level of arsenic in drinking water should be considered.

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JALALABAD MEDICAL JOURNAL

Original article

Vaccination and its Impact in Rural Community of Bangladesh

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ABSTRACT

A cross sectional study was conducted in a selected rural community of Bangladesh to assess the routine childhood vaccination coverage among 12-23 month old children and to know the knowledge, attitude and practice (KAP) of mothers of those children on Expanded Program on Immunization (EPI). In the study group, 88% children were fully vaccinated whereas 4% were not immunized at all. Immunization card retention rate was 72%. Most of the children (69%) took vaccination from government outreach centers and from hospitals (21%) . 73% of mothers obtained immunization message from government workers, 12% from various media. Among the respondent mothers, 57% were found to have completed the primary level of education (completed class five) and 24% were illiterate. Among the mothers, the majority (45%) was in the age group of 21-25 years; 27% were between 26-30 years of age. The most common reason of vaccination failure was mother's inability to take their children to the vaccination site due to the child being sick (40%) followed by fear of adverse reactions of immunization (30%).

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INTRODUCTION

Various diseases have struck mankind ever since the human life begun on the earth. Most of the diseases that strike the children in early infancy or the pre-school period are preventable by immunization. Immunization is a simple health intervention that can reduce disease load and save lives. It is also the most important means to improve the health status of whole population.[1] Immunization has always been a cornerstone of various child survival programs of recent decades. Some have already suggested it as a proxy indicator for availability of PHC services.[2] A state of immunity can be induced by passive or active immunization. Transfer of preformed antibodies induces short-term passive immunity. However, infection or vaccine inoculation achieves long-term active immunization.[3]

The Expanded Program on Immunization (EPI) was launched in the countries of South-East Asia

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Region (SEAR) by WHO in 1977 to prevent the six common deadly but vaccine preventable diseases viz. tetanus, tuberculosis, diphtheria, pertussis, poliomyelitis and measles.[4] In Bangladesh, EPI was formally launched on 7th April 1979. In 1985, the Government of Bangladesh adopted the goal of Universal Child Immunization (UCI) and took various strategies to achieve it.[5] In Bangladesh, although other development efforts suffer from setbacks, stagnation or reversals, EPI has shown considerable amplified as because, it is heavily subsidized by foreign donors. However the ministry of health is contending with cost, cost-effectiveness and financial issues of the EPI, with goals of increasing the immunization coverage to 90%. EPI expenditures in 1997-98 reached $18.3 million, covering 110,000 immunizations per month, which was successful in preventing 2.28 million deaths.[5] The effectiveness of EPI is periodically monitored by different international health agencies like WHO, UNICEF, etc. WHO and other health agencies also carry out Coverage Evaluation Survey (CES), which dictates efficacy of vaccination program. However, studies to observe the impact of EPI in a rural community of Bangladesh are insufficient. Therefore, to observe the awareness and responsiveness of mass people towards EPI this study was conducted in the dept of Community Medicine in collaboration with dept of Microbiology of Holy Family Red Crescent Medical College from March to April 2004.

MATERIALS AND METHODS

This cross-sectional community based descriptive study was done in Hatkopa village of Sonargaon thana under the district of Narayangonj from March to April 2004, conducted by department of Community Medicine in collaboration with dept of Microbiology, Holy family Red Crescent Medical College, Dhaka. A total 94 children were included to assess the routine childhood vaccination coverage among 12-23 months old children and to know the knowledge, attitude and practice (KAP) of village mothers about immunization. A house-to-house survey was carried out with a pre-tested structured questionnaire. Mothers of 12-23 month aged children were interviewed with an intention to collect different socio-demographic variables. Data were collected from the respondent mother at a random basis. Moreover, we had to relay on the memory of the mothers to recall the sources of knowledge about vaccination. The following parameters were studied. 1) Valid vaccination coverage 2) vaccination card retention status 3) causes of vaccination failure 4) sources of vaccination services 5) sources of EPI message 6) age of respondent mother 7) educational status of mothers

RESULTS

Table I shows the valid vaccination coverage of study area. In the study group (n = 94) most of the children were fully immunized (88%) with all doses of vaccine. Among the vaccinated children most of them (72%) had immunization card but 28% of the children do not had it, may be not given or lost (Table II). The most common reason of immunization failure was child sickness (40%), followed by fear of adverse reaction in 30% of the cases. Mothers of 20% of the children who failed to receive vaccination also reported that they don't know about

Table I : Valid immunization coverage (card + history)

Immunization status	Number	Percentage
Fully vaccinated	84	88
Partially vaccinated	6	8
Not vaccinated	4	4
TOT A L	**94**	**100**

Table II : Vaccination card retention status among the vaccinated children (n=90)

Card retention status	Number	Percentage
Yes	65	72
No	25	28
TOTAL	**90**	**100**

Table III : Reasons of vaccination failure (n=10)

Reasons	Number	Percentage
Sickness of child	4	40
Fear of reaction	3	30
Don't know about vaccination	2	20
Absence of vaccinator	1	10
Total	**10**	**100**

Table IV : Sources of vaccination services (n=90)

Source	Number	Percentage
Outreach center (govt.)	62	69
Hospital	18	21
Bari	5	5
NGOs	5	5
Total	**90**	**100**

Table V: Sources of immunization message (n=90)

Sources of message	Number	Percentage
Government worker	65	73
Media	10	12
NGOs worker	5	5
Teacher	5	5
Volunteer	5	5
Total	**90**	**100**

Table VI: Distribution of the mothers according to educational status (n = 94)

Educational	Number	Percentage
Illiterate	22	24
Primary (class V)	54	57
Secondary (SSC)	16	17
College and above	2	2
Total	**94**	**100**

Table VII : Distribution of the mothers according to the age group (n = 94)

Age group (yrs)	Number	Percentage
15 - 20	19	20
21 - 25	42	45
26 - 30	25	27
31 - 35	8	8
Total	**94**	**100**

immunization program. (Table III) Table IV shows the sources of vaccines. Among the immunized children maximum (69%) took vaccine from government outreach sites. Others took from hospital, NGOs etc. Out of 90 interviewed mother (whose children got vaccination), 73% received message of immunization from government workers. Other 12 % got message from different media. (Table V) Among the respondent mothers majority (57%) completed primary level of education, 27% were illiterate and 17% completed secondary education. Table VI shows the fact. Table VII shows the distribution of mother according to age group. Maximum mother (45%) were in 21-25 year age group.

DISCUSSION

In developing countries like Bangladesh, communicable diseases account for the principal causes of morbidity and mortality. In the 2002 Coverage Evaluation Survey (CES), nationally 56 percent of the 12-23 months old children were found fully vaccinated with valid doses of all antigens by the age of 1 year. The antigen specific valid coverage rate was 95% for BCG, 86% for DPT1, 78% for DPT2, 69% for DPT3, and 65% for Measles. However,the urban rural disparity in the vaccination coverage is also continued to exist.[6] In our survey we found 88% children as fully vaccinated. This may be due to small sample size or more effective EPI program in that particular village. Nationally, the most common cause failure was 'fear of adverse reactions of vaccination', reported by 27 percent of the mothers/care-

givers. Next common reasons were: 'lack of knowledge about the need of vaccination' (10%), 'belief that vaccination was not needed' (8%), 'long distance of the vaccination site' (6%), and 'lack of knowledge about where to go for vaccination' (6%).[6] In our survey 40% mothers failed to vaccinate their child because the child was sick. Second cause came as 'fear of vaccination' (30%). Other reasons were 'don't know about vaccination' (20%), 'no vaccinator at the site' (10%). The government is the major provider of childhood vaccination. Nationally, 92% of the surveyed children were vaccinated in outreach sites, compared to only 8% in all other sources.[5] In our survey we found 69% child took vaccination from outreach sites and 21% took vaccination from hospital. This may be due to the location of the village. Among the children provided with vaccination card, only 63% were found to be retaining it nationally, 62% in rural areas and 67% in urban areas.[6] In our survey we found card retention status is 72 percent which is a little bit higher than the national.

It is also noted that failure to immunize when indicated is a medical negligence. Failure to give anti-tetanus serum in case of injury or before operation and antenatal period falls under the rule of professional negligence. Patient needs not to prove the negligence that means, 'The thing or fact speaks for itself.[7] Neonatal tetanus and measles remained important causes of death in Bangladesh.[8]

Delayed or non-immunization was associated with low socio-economic status, maternal illiteracy, and lack of mothers' knowledge on vaccine preventable diseases as recommended by the EPI. The association of this lack of mother's knowledge with no or delayed immunization persisted after adjusting the effects of others in logistic regression analysis (Odds Ratio 16.7; 95 percent confidence interval: 15.65-17.8; $P < 0.0001$). The results indicate that even in the presence of maternal illiteracy, educating mothers about the vaccines and vaccine preventable diseases may be highly effective in increasing the immunization coverage.[9] Recent progress in the development of vaccines against agents responsible for much mortality in the developing countries makes it possible to forecast a further substantial reduction of deaths for infectious diseases in the next century.[10]

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Review article

Knowledge and Perception of Emergency Contraception

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ABSTRACT

Emergency contraception is a critical last tool that prevents unwanted pregnancy. Awareness and precise knowledge on emergency contraception among the general population as well as among doctors (both gynecologists and general practitioners) is inadequate. In order to disseminate the knowledge of emergency contraception among medical professionals, this review was carried out with the help of different well known medical journals and internet search. Combined oestrogen and progestin which is known as 'Yuzpe regimen' is the most commonly used drug of emergency contraception reduce the risk of pregnancy by 75%. Oestrogen alone is equally effective as 'Yuzpe regimen' but have more side effects. Danazol, an antigonadotropin have advantages over 'Yuzpe regimen' as its less severe side effects but more expansive and not easily available in market. Antiprogestin mifepristone induce early abortion and preliminary trail showed it as a highly effective emergency contraceptive. It also combined with per vaginal misoprostol causes contraction of uterus and help expulsion of conceptus within 6 to 8 hrs. Intrauterine copper device is a highly effective postcoital contraceptive with failure rate of less than 1% also suitable for women who wish to use the device as a long term method of contraception. Though no documented restrictions associated with repeated use of emergency contraception it should not be used as a regular method of birth control.

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INTRODUCTION

Emergency contraception refers to the contraceptive methods that reduce the chance of pregnancy following unprotected intercourse. It is a recent term, which is intended as a last chance to prevent pregnancy for women who have been exposed to unprotected coitus and who don't wish to become pregnant.

Emergency contraception offers women a practical option and critical last chance to prevent unwanted pregnancy and the associated hardships. For pregnancies carried to term, the mother of an unintended pregnancy is at greater risk of depression, physical abuse and not achieving her educational, financial and career goals. The baby of an unintended pregnancy is at a greater risk of being born at low birth weight, dying in the first year of life, not receiving resources necessary for healthy development and being neglected. Also a number of unwanted pregnancies end in abortion.

Emergency contraception can be used by a woman who has unprotected sex but does not want to become pregnant. For example

1. If no method of contraception is used

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2. If a condom breaks or slips

3. If an IUD is displaced

4. If a diaphragm slips out of place or is removed less than 6 hours after intercourse

5. If the rhythm method of contraception is used and there was a mistake in timing

6. If several birth control pills are missed

7. If more than 2 birth control pills are missed in the first week of the pack

8. If a pack of birth control pills is started more than 2 days late

9. If the schedule of a contraceptive injection is delayed for more than one week

10. If ejaculation occurs on the genitalia using coitus interruptus

11. If there has been recent exposure to a teratogen

12. If a sexual assault occurs

Methods of emergency contraception

Both drugs and devices are available for emergency contraception. Combined estrogen and progestin preparation, oestrogen alone, progestin alone, synthetic progestin and androgen preparation (Danazol), mifepristone, abortion pill (combination of mifepristone and misoprostol) and intrauterine devices are in use.

Combined estrogen and progestin

First described by Yuzpe and Lancee[1] This combination therapy is often referred to as the 'Yuzpe regimen'. The oestrogen progestin regimen consists of two doses-the first dose taken within 72 hours of intercourse and the second dose 12 hours later[2, 3]. This is the most commonly used emergency contraception. It reduces the chance of pregnancy by about 75% [4].The common side effects associated with this regimen are nausea and vomiting of which up to 50% and 20% respectively, have been reported. This may occasionally interfere with taking the second dose and vomiting may reduce efficacy if it occurs less than 2 hours after taking the medication as peak absorption occurs about 1.6 hours from intestine[5]. Therefore replacement is unnecessary if vomiting occurs after this time. If vomiting occurs within the first hour after taking the pills, the dose should be repeated. Some clinics give routine anti-emetic medication. Other side effects include headaches, breast tenderness, abdominal pain and dizziness. The subsequent period is usually on time but can be a little earlier or later [6]. There are no absolute contraindications to the use of oestrogen-progestin regimen except known pregnancy. However there is no evidence linking its use to the risk of fetal malformation [7-9]

Oestrogen alone

During the 1960s and early 1970s high dose oestrogen was the standard regimen[8]. This method is sometimes referred to as the five by five regimens and consists of five tablets of 1 mg ethinyl estradiol given daily for five days[7-10]. It is said to be as effective as the Yuzpe method but produces more side effects. The nausea and vomiting experienced with the Yuzpe regimen are exaggerated with the oestrogen only regimen and more women experience these side effects. Additionally with the high dose of oestrogen sustained for five days, there is a theoretically higher risk of thromboembolism.

Progestin alone (Postinor)

The levonorgestrel regimen consists of two doses of 0.75 mg of levonorgestrel taken 12 hours apart starting within 48 hours of unprotected intercourse[11, 12]. A single dose of 1.5 mg within 12 hours is also effective. It is given to those women who can't take oestrogen and lactating mothers.[12]

Danazol

This is a synthetic progestin and androgen. It is an antigonadotropin, which could be used as an emergency contraceptive. The danazol regimen consists of 400 mg each taken 12 hours apart with the first dose given within 72 hours after unprotected intercourse. Other variants of this regimen involve three doses of 400 mg each, taken 12 hours apart and two doses of 600 mg taken 12 hours[7, 8]. The advantages of danazol are that its side effects are less prevalent and less severe than those associated with the Yuzpe method. Another advantage is the fact that danazol can be taken by women with contraindica-

tions to compared oral contraceptions or oestrogen[11]. The disadvantage is that danazol is expensive and not readily available, which makes it unsuitable for emergency contraception.

Anti-progestins

Mifepristone is a synthetic steroid with potent anti-progestational and anti-glucocorticoid properties that provides an effective medical method of inducing abortion in early pregnancy. Preliminary trials have shown that a single dose of 600 mg is highly effective as an emergency contraceptive[13]. Also known as RU486, mifepristone has been used safely in Europe for many years. All the side effects noticed with the other methods were much less common among the women given mifepristone, except for the delay in the onset of next menses[7, 8].

The abortion pill

The abortion pill (brand name Mifeprex) is used for induction of early abortion (8 weeks pregnancy or less) cause by the combination of two medications, mifepristone (600 mg) and misoprostol (1g). Mifepristone blocks the actions progesterone needed to maintain pregnancy. As the hormone is blocked, the uterine lining begins to shed, the cervix begins to soften and bleeding may occur. Misoprostol can be given either orally or per vaginally. When the misoprostol is inserted into the vagina, the uterus contracts and the conceptus is usually expelled within 6 to 8 hours. According to the studies of Food and Drug Administration (FDA), there are no long-term risk associated with using mifepristone and misoprostol and combination has been found to effectively terminate pregnancy in over 95% of patients treated during the first 7 weeks after conception.

The intrauterine contraceptive device

The copper bearing intrauterine device is a highly effective postcoital contraceptive with failure rates of less than 1%[14]. It is used for up to five to seven days after unprotected intercourse and is particularly appropriate for women who wish to use the device as a long term method of contraception. The service delivery challenge raised by this method is the fact that a trained health care provider under aseptic conditions must insert it. In addition, the method is contraindicated for women at risk of sexually transmitted diseases who are frequently the same women who need emergency contraception. It may be difficult to insert in nulliparous women[8]. It is therefore proper to screen women for infection or to give an antibiotic before insertion of the device[14].

How does the drug act?

Emergency contraception is not meant to be a regular method of birth control. It keeps a woman from getting pregnant by stopping:

1. Ovulation or stopping the ovaries from releasing eggs that can be fertilized.

2. Fertilization or stopping the egg from being fertilized by the sperm.

3. Implantation or stopping a fertilized egg from attaching itself to the wall of the uterus.

How effective is emergency contraception?

Emergency contraception reduces the risk of pregnancy if it is used appropriately. On average, the Yuzpe method of emergency contraception reduces the risk of pregnancy by 75%[15, 16]. Progestin only pills reduce the risk of pregnancy by 89%[17]. However the effectiveness of both methods depends on how quickly the woman takes the drugs after unprotected coitus. The sooner the pills are taken within 72 hours window, the more effective they will be. If progestin only pills are given within the first 24 hours following unprotected intercourse, 95% of pregnancies that would have resulted are prevented [17-20]. The Yuzpe method prevents 77% of potential contraceptions if it is used within first 24 hours post coitus. However, this method will prevent only 31% of potential pregnancies if it is used from 48 to 72 hours after unprotected intercourse[5, 16]. It gives no protection against STDs.

Should emergency contraception be used regularly?

Emergency contraception is not the most effective method of preventing pregnancy and therefore should not be used as a regular method of birth control[21]. However there are no known medical restrictions associated with repeated use of emergency con-

traceptive pills.

Is there any age limitation on the use of emergency contraception?

Emergency contraceptive pills are for use by women of childbearing age. Safety and effectiveness are expected to be the same for teenagers as for adult women, so long as they have begun menstruating. There is no specific upper age limit on the use of emergency contraception.

Drug interactions associated with concurrent medication

There are potential drug interactions for women using emergency contraception with the following medications such as phenytoin[22], carbamazepine[22], rifampicin[22] barbiturates[23], warfarin[24], ethosuximide, grisufulvin, certain anti-viral medications (e, g, Ritonavir), dexamethasone or other steroids (e. g. prednisone, methyl prednisolone).

Why should emergency contraceptive pills be available directly from pharmacists?

Lack of access to emergency contraception[25, 26] and of knowledge about emergency contraception among the public[26-29] and practitioners[30] have been documented as barrier to emergency contraceptive use. Because emergency contraception is more effective the earlier it is used (i.e. 95% if taken within 24 hours), improved access and improved awareness for women is essential in prevention unwanted pregnancies. Given their expertise and accessibility, pharmacists are well positioned to play major role in increasing women's access to emergency contraception and in providing counseling about contraceptive options. Emergency contraception products are approved for sale in more than 20 countries. It is available directly from pharmacists in the UK, France, Denmark, Norway, Washington and California states of USA.

CONCLUSION

It is important to recognize that the use of emergency contraception represents a responsible decision by a woman who is attempting to prevent an unintended pregnancy. The consequences of such pregnancies are unacceptable. So, easy availability and accessibility of emergency contraception with improved knowledge will go a long way toward preventing most of this unwanted pregnancy. The new interest in emergency contraception will remove the myths and misunderstandings being dispelled, which will help the healthcare provider to become more aware and to inform their patients.

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JALALABAD MEDICAL JOURNAL

Case Report

Osteopoikilosis : A Case Report

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ABSTRACT

Osteopoikilosis (spotted bone disease) is a radiologically diagnosed condition. It is rare and does not interfere with conventional management of any associated musculo-skeletal disorder. It tends to have an autosomal trait and asymptomatic. Other similar disorders should be borne in mind and distinguished from conditions demanding effective treatment. X-ray incidentally diagnosed a 25-year-old male during the treatment of his wrist sprain. Astonishing character of case led me to report the case.

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INTRODUCTION

Osteopoikilosis, spotted bone disease or osteopathia condensans disseminata, is a rare hereditary autosomal dominant sclerosing bone dysplasia, more common in males.[1] The diagnosis is usually made incidentally from radiographs, which show multiple, small, well defined, variably shaped, and widely distributed (over the skeleton) sclerotic areas. The involvement is symmetrical and the predilected locations are the phalanges of the hand, carpal bones, metacarpals, foot phalanges, metatarsals, tarsal bones, ilium, femur, radio and sacrum.[2] It must be distinguished from melorheostosis, osteopathia striata, osteopetrosis, and fundamentally from osteoblastic bone metastases on the basis of the clinical, radiological (roentgenographs, computed tomography and magnetic resonance) and radionuclide scanning characteristics.[3] Histologically, there are focal condensations of compact lamellar bone within the spongiosa.[1]

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CASE REPORT

A 25 years male presented at the orthopedic out patient department of Jalalabad Ragib Rabeya-Medical College Hospital with the complaints of right wrist pain for one month following a traumatic injury. On examination, other than bony tenderness over distal end of radius and some restriction of movement of right wrist, no other abnormalities were detected. He was diagnosed as a case of wrist sprain and advised rest with analgesics. However, to exclude any bone pathology a plain x-ray of the wrist was advised. Surprisingly the x-ray revealed numerous dens spots all over the hand skeleton (figure 1). Other relevant investigations were carried out and found within normal limits. He responded well to conventional conservative treatment, his pain subsided and unaware of his mysterious skeletal condition he left for home.

DISCUSSION

There are certain conditions of bone that do not demand special considerations and possibly they just exist, harmlessly. They are mainly detected by

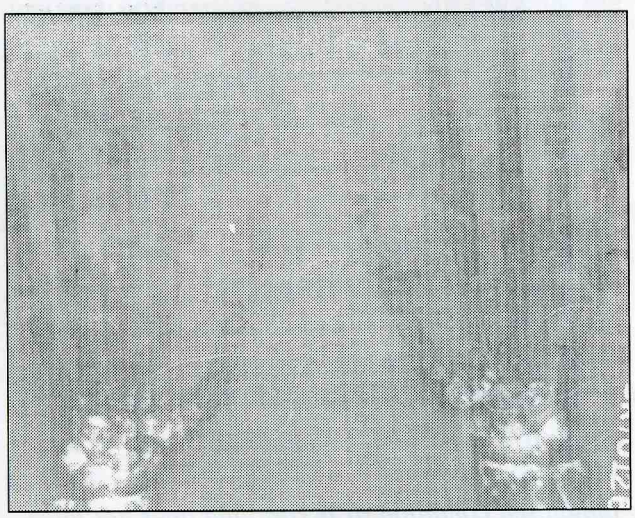

Fig-1 : X-ray of wrist joint showing the sported areas over matacarpal bones.

chance when a part is x-rayed for other reasons and should not be considered as disease.[2] There were multiple whitish spots present in the wrist roentgenogram of the patient. The feature of wrist joint was similar to the other reported cases of osteopoikilosis.[2] Spotted bone disease or osteopoikilosis, usually follow autosomal dominant trait, and may be associated with whitish spots of the skin, disseminated lenticular dermatofibrosis, also known as Buschke-Ollendorf syndrome.[4] References about this condition are not many. Scattered cases are however reported worldwide. Resources are mainly sporadic cases reported in different journals. The authors emphasis mainly on preventing senseless treatment of these benign or even aggressive conditions. Some authors pointed out the fact that these conditions may be distinguished from treatable more serious diseases like metastatic prostate carcinoma or even metastatic breast carcinoma[5] They may be associated with rheumatoid disease[6] or discoid lupus erythematosus.[5] Spotted bone disease progresses during puberty.

Though no effective management is required for osteopoikiosis some skeletal conditions must be excluded which require special consideration. Some of these conditions that are mentioned in the literature are discussed. Candle bones (melorheostosis, Leries disease),[3] this condition is represented by pain and stiffness. Radilogically the bones look like melting candlesticks. The affected bone is sclerotic, no effective treatment suggested. Striped bone (osteopathia striata),[8] a symptomless condition with some autosomal dominant trait where on x-rays bones show lines of increased density parallel to the shaft of the bone. Disappearing bone disease, osteolysis (Gorham's disease),[9] in this condition there is progressive disappearance of bones usually contiguous bones or at multiple sites. There may be pain and pathological fractures, no effective treatment is known. Marble bones (osteopetrosis, Alber-schonberg disease), by itself a symptomless condition, is usually diagnosed after a fracture. Radilogically the bones show increased density, cortices are thick and modularly cavities narrow. Cranial nerve compression is recorded and need treatments, chances of infection are high and anemia is common. A milder form, which appears later in life, is known as osteopetrosis tarta, and the other congenital type, osteopetrosis congenita.[10] Pyknodysostosis is manifested by shortness of stature, underdevelopment of mandible, blue sclera and multiple fractures, which need attention.[11]

CONCLUSION

The abovementioned conditions are mainly harmless and usually symptomless. Those, which may be symptomatic and produce clinical problems, should be treated according to the symptom. No extra effort is needed, as there is neither any effective treatment nor preventive measure so far available.

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Miscellaneous

News

FLOOD AID ACTIVITIES

Jalalabad Ragib-Rabeya Medical College and Hospital (JRRMCH) provided medical services to the devastating flood affected people of Sylhet, Sunamgonj, Habiganj and Moulvibazar districts through thirteen medical teams comprising of 4 to 10 doctors and 6 to 10 medical students in each team. The teams rendered their services to the diarrhaeal and other water borne disease infected people by supplying necessary advice and drugs during the period from 29th July to 20th August 2004. The medical teams attended the relief camps in different areas of South Surma, Jalalpur, Balaganj, Companigonj, Biswanath, Moglabazar, Jointapur, Golapgonj, Goainghat, Lakhsmipasha, Zakigonj, Rajnagar, Lakhai, Nabigonj, Sunamgonj sadar, Chattak and Gobindagonj of Sylhet division.

As per the earnest request of the Founder and Chairman of JRRMCH, Mr Ragib Ali, the whole activities were conducted by the Principal Maj Gen (retd) Prof Md Nazmul Islam with the active support of the Vice Principal Prof Syed Luqueman Ali, Director of Hospital, Prof Md Kamruzzaman, Prof of Pharmacology, Prof Nazimuddin Ahmed and Asstt Prof of Paediatrics, Dr Tarek Azad. Besides this, the programme became more fruitful and upgraded by the cordial active participation of Dr Nazrul Haque Chowdhury, Deputy Director of Hospital, Dr Afroza Begum, Assoc Prof of Gynae & Obs, Dr Syed Shafi Ahmed Muaz, Assoc Prof Paediatrics, Dr Monowar Ahmad Tarafdar, Assoc Prof of Community Medicine, Dr Altafur Rahman, Asstt Prof of Forensic Medicine, Dr Abdullah, Asstt Prof of Dermatology, Dr Sheikh Abdul Moktad, Asstt Prof of Ophthalmology, Dr Chandan Kumar Roy, Asstt Prof of Microbiology, Dr Nazmul Hossain Asstt Prof of Community Medicine and Dr Sharadindu Kanti Sinha, Asstt Prof of Pharmacology. There was also heartiest participation of Dr Akramul Alam, Dr Sabbir Ahmed, Dr Atiqur Rahman and Dr Monaj Kumar Dutta and other doctors, interns and students of this institution.

A total of eighteen thousand one hundred fifty patients were benefited by getting advice and necessary drugs free of cost. The Founder, Principal and the team leaders along with their team members had a comprehensive interaction with the community including the local public representatives regarding public health.

SANDHANI INAUGURATED IN JRRMCH

The voluntary organization of medical students 'Sandhani' started its activities in JRRMCH in November 30, 2004. It is the 2nd unit of Sandhani among all the private medical colleges of Bangladesh. Sandhani JRRMC unit got the approval of Sandhani Central Committee on 16th December 2004. To establish Sandhani in this institution, the indefatigable efforts of all students and teachers, especially the Principal, Maj Gen (Retd) Prof Md Nazmul Islam, Dr Abed Hussain, Assoc Prof of Pathology, Dr Md Tarek Azad, Asst Prof of Paediatrics, Dr Mahfujur Rahman, IMO of Surgery, Rashedul Kabir of 5th year, Rajib Shahriar, Fazlul Haque

Sohel of 4th year were outstanding. In addition, the advisors of Sandhani Central Committee, Dr Zubayer Ahmed Rifat, Dr Ziaul Haque and Dr Rakib also gave assistance to establish Sandhani in this medical college. Rashedul Kabir and Rajib Shahriar were elected as the 1st convener and 1st joint convener respectively. With the heartiest co-operation of all, it was hopped that Sandhani JRRMC unit would operate its activities for the benefit of the poor and distressed people of Sylhet division as well as of the whole country.

CORRIGENDUM

It is hereby notified that the following corrigendum issued for the Jalalabad Medical Journal, Vol-1, No-2, July 2004 in page no 59.

Mohammad Nazmul Islam, the 2nd author of the review article titled 'Clinical features and epidemiological evidences in early detection of SARS' will be changed to Mohammad Nazmul Hossain.

Instructions for Author(s)

Manuscripts on clinical, review, experimental and historical topics pertinent to medical sciences are accepted for the publication in this journal. The papers are accepted for the publication with an understanding that they are solely submitted for this journal. The statements, comments or opinions expressed in the papers are exclusively of author(s), not of editor(s) or publisher. The manuscripts are to be prepared as described in following instructions. 3 (three) hard copies are to be submitted. Letters about potentially acceptable manuscripts will be sent after review process is complete. No manuscripts will be returned if not accepted for publication. In addition an electronic/digital version of the manuscript composed in MS word 98/2000 should be submitted in a diskette.

Preparation of manuscripts

Manuscripts should be typewritten, double-spaced throughout (including references and tables) on one side of good quality A4 sized paper, with margins of at least 25 mm. Each component of the manuscript should begin on a new page in the sequence of title or cover page, abstract with key words, text, acknowledgement, references, tables and legends for illustrations.

Title page will contain

a. Concise and informative title of the article

b. Author(s) name, highest academic degree(s).

c. Name of the department(s) and institution(s).

d. Address for correspondence and reprint (please include e-mail address and fax if available)

Abstract and key words

An informative abstract not more than 250 word should briefly describe the objectives, materials and methods, results and conclusion. Number of key words should not more than ten and none that are in the title.

Text should contain Introduction, Materials and Methods, Results and Discussion in sequence.

Introduction

It should briefly disclose the purpose of study. It will help the readers with the problem finding. It should be clear in nature and purpose.

Materials and Methods

Clearly it should include materials, experimental procedures, methods etc. Mention the nomenclature, source of material, equipment with manufacturers details in parentheses. Describe new methods in sufficient detail indicating their limitation. Established methods should be cited with authentic references. Ethical standards should be followed in reporting experiments done in human subjects. Precisely identify the dosage and route of administration, when drugs or chemicals are used. Measurements and data should be stated in SI unit, or if SI unit does not exist, use an internationally accepted unit. Abbreviations and acronyms should be used for widely used terms and names, which occurs consistently and frequently in the manuscript.

Results

It should be presented in logical sequence in text, tables or illustrations. Duplications of data in the tables or illustrations should be avoided. Emphasize or summarize only important observations.

Discussion

Emphasize the new and important aspects of the study and conclusion derived from them. Detail data written in introduction and other portions of text should not be repeated. The implication of results and their limitations including suggestion for future research should be included in the discussion.

References

Number the references consecutively in order mentioned in the text. Full list of reference should include all authors. Avoid using abstracts as references. References to paper accepted but not yet published should be designated as 'in press' or 'forthcoming'. Authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication. Information from manuscripts submitted but not accepted should be cited as 'unpublished observations' with written permission from the source. Use the styles of example below, which are based on the formats used by US National Library of Medicine (NLM) in the *Index Medicus*. The title of journals should be abbreviated according to the style used in *Index Medicus*.

Article in journal

a) List all six authors when six or less

Vega KJ, Pina I, Krevsky B. Heart transplantation in associated with an increased risk for pancreatobiliary disease. Ann Intern Med 1996; 124 (11): 980-3.

As an option, if a journal carries continuous pagination throughout a volume (as many journals do) the month and issue number may be omitted.

b) More than six authors

Parkin DM, Clayton D, Black RJ, Masuyer E, Friedl HP, Ivanov E, et al. Childhood leukaemia in Europe after chernobyl: 5 year follow-up. Br J Cancer 1996; 73:1006-12.

c) No author given

Cancer in South Africa (editorial). S Afr Med J 1948; 84:15

d) Organization as author

The cardiac society of Australia and New Zealand. Clinical exercise stress testing. Safely and performance guidelines. Med J Aust 1990; 146: 267-9.

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a) Personal author(s)

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b) Editor(s),compiler(s) as author

Norman IJ, Redfern SJ, editors. Mental health care for elderly people. 5th ed. New York: Churchill Livingstone; 1999.

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Student's medical dictionary. 26th edi. Baltimore: Williams and Wilkins; 1995. Apraxia; p.119-20.

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a. In press

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Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis [serial online] 1995 Jan-Mar [cited 1996 June 5]; 1(1): [24 screens]. Available from: URL: http://www.cdc.gov/ncidod/EID/eid.htm

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C) Computer files

Haemodynamics III: The ups and downs of haemodynamics [computer program]. Version 2.2. Orlando (FL): Computerized Educational Systems; 1993.

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(Figure(s), photograph(s) etc.)

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Acknowledgement should appear at the end of the manuscripts before references.

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Manuscripts are usually examined by the editorial staff and are sent to outside reviewers. Author's suggestion regarding the names of possible reviewers is encouraged, but editorial board reserves the right of final selection.

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