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EDITORIAL

Dexmedetomidine: A Novel Sedative-Analgesic Agent

A S M Moosa

Effective use of sedative-hypnotic and analgesic agents is an integral part of providing patient comfort and safety. Dexmedetomidine is a potent and highly selective α2-adrenergic agonist with sympatholytic, sedative, amnestic and analgesic properties. Its has ability to provide sedation without risk of respiratory depression (unlike other commonly used sedatives such as propofol, fentanyl, and midazolam) and can provide cooperative or semi-arousable sedation.(1) A unique feature of dexmedetomidine is that it has analgesic properties in addition to its role as a hypnotic, but is opioid sparing, and is therefore not associated with significant respiratory depression (unlike propofol). (2)

Dexmedetomidine, an imidazole compound, is the pharmacologically active dextroisomer of medetomidine that displays specific and selective α2-adrenoceptor agonism. The mechanism of action is unique and differs from those of currently used sedative agents, including clonidine. Activation of the receptors in the brain and spinal cord inhibits neuronal firing, causing hypotension, bradycardia, sedation, and analgesia. The responses to activation of the receptors in other areas include decreased salivation, decreased secretion, and decreased bowel motility in the gastrointestinal tract; contraction of vascular and other smooth muscle; inhibition of renin release, increased glomerular filtration, and increased secretion of sodium and water in the kidney; decreased intraocular pressure; and decreased insulin release from the pancreas.(3) Drugs may act at any of these sites to reduce nociceptive transmission, leading to analgesia. The activation of inwardly rectifying G1-protein-gated potassium channels results in membrane hyperpolarization, decreasing the firing rate of excitable cells in the CNS. This is considered a significant mechanism of the inhibitory neuronal actions of α2-adrenoceptor agonists.(4) Another prominent physiologic action ascribed to α2 adrenoceptors is their reduction of calcium conductance into cells, thus inhibiting neurotransmitter release. This effect involves direct regulation of calcium entry through N-type voltage-gated calcium channels and is independent of cAMP and protein phosphorylation. The hypnotic and sedative effects of α2-adrenoceptor activation have been attributed to this site in the CNS. The locus coeruleus is also the site of origin for the descending medullospinal noradrenergic pathway, known to be an important modulator of nociceptive neurotransmission. In this region of the brain, α2-adrenergic and opioidergic systems have common effector mechanisms, indicating that dexmedetomidine has a supraspinal site of action.

These findings lead to the conclusion that the major sedative and antinociceptive effects of dexmedetomidine are attributable to its stimulation of the $\alpha 2$ adrenoceptors in the locus coeruleus.

Dexmedetomidine's action in the locus coeruleus of the brain stem, it has been shown to stimulate $\alpha 2$ receptors directly in the spinal cord, thus inhibiting the firing of nociceptive neurons. The substantia gelatinosa of the dorsal horn of the spinal cord contains receptors which, when stimulated, inhibit the firing of nociceptive neurons stimulated by peripheral $A\delta$ and C fibers and also inhibit the release of the nociceptive neurotransmitter substance - P.(5)

Dexmedetomidine is most often used in the intensive care setting for light to moderate sedation. Ongoing sedation can be maintain with the use of exmedetomidine during and following extrubation. Several studies have confirmed the decreased requirement for opioids (over 50%) when exmedetomidine is used for sedation versus propofol or benzodiazepine. Most studies also describe more stable hemodynamics during weaning from mechanical ventilation, when exmedetomidine is used for sedation.(6,7)

Dexmedetomidine can also be used as sedoanalgesic for procedural sedation, such as during colonoscopy.(8) It can be used as an adjunct with other sedatives like benzodiazepines, opiates, and propofol to enhance sedation and help maintain hemodynamic stability by decreasing the requirement of other sedatives.(9,10)

Dexmedetomidine is also used for procedural sedation in children.11 Severalreports are available of exmedetomidine for both noninvasive and invasive procedural sedation in infants and children. It has been successfully used for diagnostic radiologic procedures, like MRI and CT scans, and for invasive procedures, like placement of central venous lines in infants,bronchoscopy and laryngoscopy, cardiac catheterization and others.(12)

Because dexmedetomidine possesses anxiolytic, sedative, analgesic and sympatholytic properties, it might be a useful adjunct for premedication, especially for patients susceptible to preoperative and perioperative stress. Dexmedetomidine seems to offer the same beneficial properties. Both were able to decrease oxygen consumption in the intraoperative period (up to 8%) and in the postoperative period (up to 17%).(13) Recovering from anesthesia often results in pain, elevating catecholamine concentrations. At the same time, anesthesia residuals compromise breathing. Therefore, $\alpha 2$-adrenoceptor agonists may prove beneficial in the postoperative period because of their sympatholytic and analgesic effects without respiratory depression. Opioid requirements in the intraoperative period and in the postanesthesia care unit (PACU) are reduced by dexmedetomidine.(14)

Dexmedetomidine is a potent, highly selective $\alpha 2$-adrenoceptor agonist, with sedative, analgesic, anxio;ytic, sympathlytic, and opio-sparing properties. It provides a unique type of sedation, "conscious sedation", in which patients appear to be sleepy but are easily aroused, cooperative and communicative when stimulated. It has a quick onset and a relatively short duration of action. Overall,

Dexmedetomidine has a unique constellation of properties that make it an attractive agent for both anesthesiologists and critical care physicians. However, additional studies in all patients are warranted to further evaluate its safety and efficacy in all age ranges.

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ORIGINAL ARTICLE

Result of Conservative Treatment of Trigger Finger with Corticosteroid Injection

A H S M Kamruzzaman[1], M Siddiki[2], S Islam[3], A Kader [4], PK Das[5], M Z Islam[6], M M Rahman[7], F Alam[8], M A Momen[9].

ABSTRACT

Trigger finger is a common finger aliment, thought to be caused by inflammation and subsequent narrowing of the A1 pulley, which causes pain, clicking, catching and loss of motion of the affected finger. The aim of this study was to evaluate the outcome of conservative treatment of trigger finger. The management of trigger finger has always held a particular interest for Orthopaedic surgeons. This prospective study was carried out at Rangpur district from January 2010 to August 2011. 34 patients were treated by corticosteroid injection. Goal of this study was to find out a safe, effective management of trigger finger. Routine follow up was carried out in 29 Patients. In 24 cases (81.76%) were fully cured, 4 cases (13.79%) pain decreases and 1 case no improvement. Study showed corticosteroid injection in trigger finger provide early relief of pain and less complication.

Key words: Trigger finger, Corticosteroid

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INTRODUCTION

Trigger finger is a condition that occurs when the gliding movement of the tendon is blocked by the osteofibrous canal of the A1 pulley, preventing the tendon from naturally extending and returning to its initial position. Although synovial proliferation and fibrosis flexor sheath are identified as triggering factors, there is no consensus in the literature about its true cause and its etiology remains unknown(1). Notta described trigger finger as a condition caused by changes to the flexor tendon and its sheath(2). Trigger finger is more common in women, on the dominant side and in the sixth decade of life. The most affected finger is the thumb; however the occurence of the trigger is also common in other fingers(3). The symptoms vary from a slight local discomfort to the formation of a tendon blockage, experienced principally in the morning, which leads to a deficit in actively extending the finger, which remains fixed in a flexed position(4). Trigger finger also appears to be linked to other disease such as rheumatoid arthritis(RA), gout, carpal tunnel syndrom(CTS), De Quervain's disease and diabetes(5,6). Quinnell classified the Trigger finger using four types during flexion and extension. Normal movement Type 0, unevent movement Type I, actively correctable Type II, passively correctable Type III and fixed deformity Type IV. Corticosteroid in conjunction with local anaesthetics may be administered to the flexor muscle sheath and this strategy has been demonstrated to produce good results(7).

MATERIAL & METHODS

This prospective study was carried out at Rangpur Medical College Hospital & Private Clinics, Rangpur from January 2010 to August 2011. A total of 34 Patients aged 25 years to 65 years were selected according to inclusion and exclusion criteria. Inclusion criteria were 25 years of age and symptomatologies of Trigger finger movement blockage on either hand in subjects who had not undergone previous treatment of any type and were classified as Quinnell Types. Exclusion criteria: we exclude individuals with Type 1 Trigger finger, which are considered congenital and secondary to the partial lesion to the tendon.

According to inclusion criteria complete physical examination and investigations, 34 cases were selected. Out of that 5 patients were unfit due to uncontrolled diabetes. So ultimate 29 cases were finally selected and counseled about their condition which necessitated an urgency of the treatment had to undergo. Injection methyl prednisolone acetate 80mg was injected at the site corresponding to the A1 pulley, attempting to inject the solution within the osteofibrous canal.8 Corticosteroid have been shown to be effective in the first two weeks of treatment but patients improvement deteriorate by 03 months. Non operative treatment has been deemed highly successful in clinical practice and is preferable over surgery. Research efforts should focus on demonstrating the most cost-effective and least invasive treatment options for patients with a flexor tendinopathy. The results of this study demonstrate improvement in range of motion, pain and function within 02 weeks. Subjectively the patient felt better and was satisfied with the outcome.

RESULTS

Total number of patients were 34 but 5 patients were lost due to uncontrolled diabetes mellitus and were excluded from this study and only 29 patients were followed up for 30 weeks.

Age range was between 25 and 65 years and average age was 35 years. Twenty Four (70.59%) were female and Ten

(29.41%) were male patients. In Twenty One (72.41%) patients there was right sided and in Eight (27.59%) were left sided has been recorded. In Twenty Four cases (81.76%) were fully cured and Four cases (13.79%) partially cured and One case no improvement.

DISCUSSION

Trigger finger is a common entity with a simple clinical diagnosis. However, aspects of its natural history, evolution and specially indication for treatment are not fully known by Orthopaedists. Several forms of treatment were cited, among which conservative treatment should be first preference in mild cases with intermittent symptoms(8).

We included patients > 25 years of age with a trigger on any finger although authors such as Bain et al have indicated that a greater risk of lesion to the neurovascular sheath exists with percutaneous release of the thumb and small finger, with respect to the stage of disease we included Types II - IV trigger fingers because Type-I trigger finger occurs sporadically and blockage may not occur, which give an erroneous impression of remission. In the injection group a 81.76% cure rate of the trigger finger was achieved with corticosteroid injection. The cases of failure of relapse were submitted to a second injection and usually third injection was not offered and the relapses were considered failures, which were then treated by means of open percutaneous release. The patients experienced a lower incidents of pain in the first 2 - 3 days of the follow up. We did not observe any lesion of the digital nerve among the treatment group.

CONCLUSION

Trigger finger is a long recognized condition characterized by a sometimes painful locking of the digit on flexion and extension. It is caused by the inflammation and subsequent narrowing of the A1 pulley through which the flexor tendon passes at the metacarpal head, leading to restricted movement of the tendon through the pulley. It is much more common in women than men, may be related to occupations involving constant gripping or repetitive local trauma and appears to be associated with systemic inflammatory diseases. This study demonstrates that conservative treatment of trigger finger presents a high rate of satisfactory results. With this approach, invasive procedure that are subject to complications can be avoided for many patients.

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ORIGINAL ARTICLE

Functional Status of Maternal Thyroid Gland in Eclampsia

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ABSTRACT

Marked changes in maternal thyroid activity occur in pregnancy. During pregnancy bodily hormonal changes and metabolic demands result in complex alteration in the bio-chemical parameters of thyroid activities. Besides these, thyroid enlargement, increased thyroid capability for iodine uptake and increase in basal metabolic rate are evidential though these findings are not usually associated with symptoms of hyperthyroidism in pregnancy. Serum concentration of thyroid hormone thyroxine and triiodothyronine in complicated pregnancy like eclamptic toxemia is another field of controversy. To evaluate the changes in thyroid function in normal pregnancy and eclamptic toxemia, study was done in Rajshahi Medical College Hospital. We collected serum specimens from non pregnant but married women, normal 3rd trimester pregnant women and patients with eclampsia at 3rd trimester of pregnancy and serum concentrations of total thyroxine (TT4), free thyroxine (FT4) and free triiodothyronine (FT3) were estimated by using Radioimmunoassay. Among the study subjects, 10 women were married but non pregnant, 12 women were in their 3rd trimester of normal pregnancy and 32 patients of eclamptic toxemia with 3rd trimester of pregnancy. In normal pregnancy, FT4 and FT3 levels remained normal while TT4 and TT3 levels were elevated. In patients with toxemia of pregnancy, the mean serum TT3 concentration was significantly lower than that of normal pregnancy and the serum FT3 concentrations were below the normal pregnancy range. The mean serum TT4 and FT4 concentrations in patients with eclapmsia were however, significantly higher than those in normal pregnant women.

Key words: Thyroxine(T4), Triiodothyronine (T3), Thyroid function & pregnancy.

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INTRODUCTION

In pregnancy maternal physiological adjustment of different organ systems occur which includes circulatory, metabolic and hormonal changes to supply adequate nutrition to the growing fetus.(1) There is evidence for presence of other thyroid stimulators like human chorionic gonadotropin (hCG) hormone besides thyroid stimulating hormone (TSH) in pregnancy. There is also evidence for increase concentration of thyroxine binding globulin (TBG) which is induced by increased estrogen production in pregnancy.(2,3,4) In normal pregnancy increased serum concentration of TBG results in increased serum concentration of total T4 and to a lesser extend of total T3. There is different opinion in different studies regarding alterations in serum free hormone levels in pregnancy.(5)

In normal pregnancy, FT4 and FT3 levels remained normal while total T4 and T3 levels were elevated. In patients with toxemia of pregnancy, the mean serum total T3 concentration was significantly lower than that of normal pregnancy and the serum FT3 concentrations were below the normal pregnancy range. The mean serum TT4 and FT4 concentrations in patients with eclapmsia were however, significantly higher than those in normal pregnant women. In Bangladesh little works have been done in this regards where eclampsia is among major health problems. The present study has been designed to compare the total and free thyroxine and triiodothyronine in normal pregnancy, in eclampsia and in non pregnant (control) subjects.

MATERIALS & METHODS

The study was conducted in the department of physiology, Rajshahi Medical College with collaboration of department of Gynae and Obstetrics, Rajshahi Medical College Hospital. The total duration of the study was 12 months. The age of the subjects were ranged from 18 to 35 years. Those having present or past history of any kind of thyroid disease, diabetes mellitus or glycosuria were excluded from the study.

A total of 54 subjects were selected as study subject in this study. The study subjects were divided into 3 groups. The group I includes 10 apparently healthy non pregnant women without having hormonal contraceptives at least for 6 months. The group II includes 12 women in their normal 3rd trimester of pregnancy. The group III includes 32 women (patients) of 3rd trimester pregnancy with eclamptic toxemia. The objectives of the study were explained to the subjects and a written concept was taken from each of them.

Detailed case history was obtained and bed-side examination of blood for random blood sugar (RBS) and urine for urine sugar were done carefully. Single sample of 10ml ante- cubital venous blood was obtained with all aseptic measures. After let it be clotted, it was centrifuged for 30 minutes and the supernatant (serum) was taken in a separate test tube. Thus the serum was ready and used for hormone analysis in the laboratory of the Center for Nuclear Medicine and Ultrasound (CNMU), Rajshahi. TT4 and TT3 were measured by conventional radioimmunoassay (RIA) method. FT4 and FT3 were measured by two-step magnetic FT4-RIA and FT3-RIA respectively. The kits used for the tests were manufactured by Beijing Atomic High Tech. Co. Ltd. China.

The obtained data was analyzed in computer using software SPSS for window version 11.5. Test of probability for significant difference was conducted by T-test (unpaired) for two independent means.

RESULTS

Serum TT4 and TT3 are expressed in nmol/L and serum FT4 and FT3 are expressed in pmol/L. The results are presented as mean ± SE (standard error of mean). The bio-chemical parameters of thyroid function of study subjects are given in Table 1.

Table 1 : Showing mean ±SE of TT4, TT3, FT4 & FT3 of study subjects.

Parameters	Group I n =10 non pregnant	Group II n =12 3rd trimester	Group III n =32 eclampsia
TT_4 (nmol/L) mean ± SE	105.5 ± 8.7	148.9 ± 3.6	179.8 ± 9.5
TT_3 (nmol/L) mean ± SE	1.4 ± 0.1	3.0 ± 0.2	2.3 ± 0.1
FT_4 (pmol/L) mean ± SE	18.5 ± 1.6	20.4 ± 2.7	26.6 ± 2.2
FT_3 (pmol/L) mean ± SE	4.8 ± 0.4	4.6 ± 0.3	3.8 ± 0.2

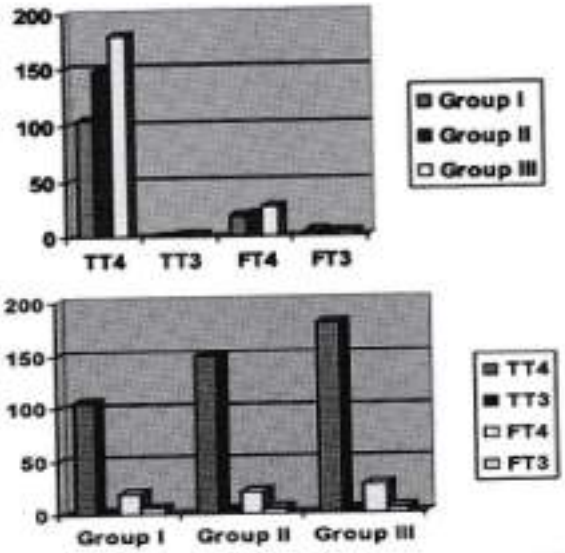

Figure 1: Bar diagram showing thyroid hormone levels 0f different study groups

Serum total thyroxine (TT4):

The mean serum TT4 is significantly higher in normal pregnancy and in eclampsia than that of non pregnant women (Table 2 and 3). The mean serum TT4, though higher in eclampsia than that of normal 3rd trimester pregnancy but the difference is not significant (Table 4). Out of 32 patients of eclampsia, serum concentrations of TT4 in 3 patients in this study are higher than normal range. The mean serum TT4 is 21% higher in eclampsia than that of normal pregnancy.

Table 2 : Showing statistical comparison between non pregnant and normal 3rd trimester of pregnancy.

Parameters	Group I n =10 non pregnant	Group II n =12 normal 3rd trimester	Significance
TT_4 (nmol/L) mean ± SE	105.5 ± 8.7	148.9 ± 3.6	Significant (P = 0.011)
TT_3 (nmol/L) mean ± SE	1.4 ± 0.1	3.0 ± 0.2	Highly significant (P =0.000)
FT_4 (pmol/L) mean ± SE	18.5 ± 1.6	20.4 ± 2.7	Non-significant (P =0.001).
FT_3 (pmol/L) mean ± SE	4.8 ± 0.4	4.6 ± 0.3	Non-significant (P =0.001).

Serum total triiodothyronine (TT3):

The mean serum TT3 in this study is significantly higher both in normal pregnancy and in eclampsia than that of non pregnant women. In contrast to TT4, the rise of TT3 is pronounced in normal pregnancy than non pregnant women. The mean serum TT3 is significantly lower in eclampsia than that of normal pregnancy.

Table 3: Showing statistical comparison between non pregnant and 3rd trimester of pregnancy with eclampsia.

Parameters	Group I n =10 non pregnant	Group III n =32 eclampsia	Significance
TT_4 (nmol/L) mean ± SE	105.5 ± 8.7	179.8 ± 9.5	Highly significant (P=0.000)
TT_3 (nmol/L) mean ± SE	1.4 ± 0.1	2.3 ± 0.1	Highly significant (P =0.001)
FT_4 (pmol/L) mean ± SE	18.5 ± 1.6	26.6 ± 2.2	significant (P =) 0.006
FT_3 (pmol/L) mean ± SE	4.8 ± 0.4	3.8 ± 0.2	Non-significant (P =0.047).

Serum free thyroxine (FT4):
The mean serum FT4 is higher in normal pregnancy than that of non pregnant women but the value is not significantly (Table 2). The mean serum FT4 is significantly higher in eclampsia than that of non pregnant women (Table 3). The mean serum FT4 is higher in eclampsia than that of normal pregnancy but the value is not significantly (Table 4).

Table 4 : Showing statistical comparison between normal 3rd trimester of pregnancy and 3rd trimester of pregnancy with eclampsia.

Parameters	Group II n =12 normal 3rd trimester	Group III n =32 eclampsia	Significance
TT_4 (nmol/L) mean ± SE	148.9 ± 3.6	179.8 ± 9.5	Non significant (P =0.046)
TT_3 (nmol/L) mean ± SE	3.0 ± 0.2	2.3 ± 0.1	Significant (P =0.016)
FT_4 (pmol/L) mean ± SE	20.4 ± 2.7	26.6 ± 2.2	Non-significant (P 0.05).
FT_3 (pmol/L) mean ± SE	4.6 ± 0.3	3.8 ± 0.2	Non-significant (P 0.05).

Serum free triiodothyronine (FT3):
There is no significant differences in mean serum FT3 between normal pregnancy, eclampsia and non pregnant women (Table 2,3 & 4). In 12 of the 32 patients of eclampsia, the serum concentrations of FT3 are slightly below normal range and 26 of them show their serum FT3 concentrations lower than that of normal pregnancy.

DISCUSSION

The present study represents an evaluation of thyroid hormones level in normal pregnancy and pregnancy with eclampsia without detectable thyroid abnormalities. The result of this study indicates an important modification in thyroid activity in pregnancy. We have focused our attention on both total and free T4 and T3 in 3rd trimester of normal pregnancy and 3rd trimester pregnancy with eclampsia and on comparing them with non pregnant control subjects. In normal pregnancy, mean serum concentration of both TT3 and TT4 are increased significantly and the elevations remain significant in eclampsia than that of control subjects. The mean serum FT4 and FT3 though elevated but are not significant in normal pregnancy than the control. In eclampsia, the mean serum FT4 is significantly different than that of non pregnant women when difference is non significant in case of FT3. Similar results have been observed in the findings of previous investigators that is, in normal pregnancy, while the serum concentrations of total thyroxine and triiodothyronine are elevated, the absolute serum concentrations of free thyroxine and triiodothyronine remain within the range of non pregnant women.

The increase in serum binding forms of thyroid hormones may be due to the marked increase in circulating level of the major thyroxine binding protein (TBG), which is induced by high estrogen level in pregnancy.(6) In addition, stimulatory effects of human chorionic gonadotropic hormones of placental origin, increased metabolic demand of the body and mental stress in pregnancy may have important role for over all thyroid activity and elevated thyroid hormone levels in pregnancy. During pregnancy increased estrogen level causes increase production of protein by the liver, consequently TBG production by hepatocytes is also increased.(6) High estrogen level on the other hand reduces peripheral degradation due to oligosaccharide modification.(7) As a result the TBG content in the plasma is elevated in pregnancy. As the binding capacity of the plasma is increased due to

elevated TBG in the serum, more hormones bind to TBG and the total plasma content of thyroid hormones is increased but free hormone levels remain unchanged and hyperthyroidism does not likely.

The mean serum FT4 difference is significant and FT3 difference is non significant between eclampsia and non pregnant women in this study. The mean serum FT3 in eclampsia is even reduced than that of non pregnant and pregnant women. As the cause of this reduced FT3 associated with significant rise of TT4 in eclampsia, we held responsible the reduced extrathyroidal conversion (peripheral deiodination) of T4 to T3.

Eclamsia is a pregnancy induced autointoxication with multi system disorder when the most affected organs are brain, livers and kidneys. Functional disorder in these organ systems is evidential in eclampsia.(11) On the other hand, liver, kidneys and muscles are the important organs of peripheral deiodination (conversion of T4 to T3)(5) and in maintenance of normal serum level T4 and T3, that is why involvement of liver and kidneys is likely to change T4 and T3 levels in eclampsia.

There is controversy in different studies regarding free hormone levels in pregnancy. Different investigators showed free hormone levels remain unchanged, decreased or even increased in pregnancy compared to non pregnant control. The present study shows no significant change in free hormone levels between non pregnant and pregnant women and may be another addition of the on going controversy.

In some other studies, the investigators observed that in variety of systematic illness, protein-energy malnutrition (PEM), prolong starvation, anorexia nervosa, Cushing`s syndrome, excessive steroid therapy etc. when systemic disorder developed, the extra thyroidal deiodination of T4 to T3 had been reduced.(5,8) Due to wide range of normal limits, these differences usually neither exceed normal limit nor produce significant change on metabolism.

Eclampsia is a major health problem in developing countries like Bangladesh. Poverty, low socioeconomic condition, poor nutritional status, early marriage and late pregnancy are common in Bangladeshi population. Illiteracy, ignorance and fanaticism badly affect their life style. Lack of awareness, inadequate antenatal care and poor obstetrical facilities predispose to high rate of morbidity and mortality in eclampsia in this country.

Though the exact mechanism of change in thyroid function in pregnancy is difficult to explain, the present study may be helpful to resolve the debate. For further studies, the following may be helpful to explain the exact mechanism :-

1. Estimation of serum TSH, hCG and estrogen level.

2. Estimation of plasma proteins including TBG.

3. Inclusion of subjects during pregnancy and eclampsia of all terms (1st, 2nd, and 3rd trimester of pregnancy).

4. Increase in number of sample size.

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ORIGINAL ARTICLE

Presentation and outcome of ARM Patients. 4 years study in SSMCH

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ABSTRACT

Total 66 pts of ARM dealt from Jan/2011- Dec/2014 total 4 yrs of study period. Male-30, Female-36. Neonale were 14, infant 10, between 1-5 yrs 32,>5x9 36 patients had vestibular Anus. Ant. Placed Anus 2 .Anorectal agenesis without fistula 15, Recto-urethral Fistula-5, Cloacal Variety 7, Rectal atresia-1.ASARP done in 38 patients PSARP in 22 pts.PSARVUP in 7 pts, Single stage done in 4 pts.Total 5 pts had assoc anomalies, No significant.Complications during the study period, death 3.3% Which is acceptable according to international standard.

Keywords : *ARM, Anorectal, Annomalies*

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Introduction :

Anorectal malformations comprise a wide spectrum of diseases, which can affect boys, girls and involve the distal anus rectum as well as the urinary and genital tracts(1). Defects' range from the very minor and easily treated with on excellent functional result to those that are complex difficult to manage, are often associated with other anomalies and have a poor functional result. (2)

The surgical approach to repairing these defects changed dramatically in 1980 with the introduction of the posterior sagittal approach, which allowed the surgeons to view the anatomy of these defects clearly, to repair them under direct vision and to learn about the complex anatomic arrangement of the junction of rectum and genitourinary tract .(3) This has become the predominant surgical method for anorectal anomalies in cases in which the rectum is very high an abdominal approach is also needed and Laparoscopy is appropriate for certain cases.(4)

Table I : Classification of Anorectal malformations

Gender	Male	Female
Anatomic type	Perineal fistula	Perineal fistula
	Rectourethral fistula Bulbar Prostatic.	(Recto) Vestibular fistula
	Rectovesical fistula (bladder-neck)	Persistent cloaca < 3cm common channel > 3cm common channel
	Imperforate anus without fistula	Imperforate anus without fistula
	Rectal atresia	Rectal atresia
	Complex defects	Complex defects

Classifications :

The classifications system shown in table I is purely descriptive and therapeutic and prognostic implications. The anatomic types are depicted in Fig 1-9, in boys, 85% have a rectourinary fistula. In terms of low lying anomalies, 35% of boys have perineal fistula where 93% of girls have on external fistula. The most common defect in females is recto-vestibular fistula. Most high anomalies in females are cloacal; a high anomaly with a rectovaginal fistula is exceedingly rare (5). Cloacal malformations are. More common than precociously thought. (6).

Epidemiology and Incidence :

Most authors written that the average worldwide incidence is I in 5000 live births,(5) Anorectal malformations are slightly more common in boys, and boys are twice as likely to have higher anomalies. Some families have a genetic predisposition, with anorectal malformations being diagnosed in succeeding generations. (6) ARM coexists with duodenal atresia, TOF. Vertebral and Renal anomalies, Down syndrome CHD. VACTERL Patients with Down syndrome usually have a unique anomaly-ARM with no fistula.(7) Approximately 60% of patients have some form of associated urologic malformation.(8)

Clinical Presentations:

Passage of meconium through a fistula is the most valuable sign of the location of that fistula. If meconium is seen on the perineum, that is evidence of a perineal fistula. If these is meconium in the urine that confirms the presence of a rectourinary fistula.

Patients and Methods:

Between 2011 and 2014 total 66 patients of ARM underwent different operative repair in our institutions . M:F 30:36:36 patients were of vestibular anus. 2 patients were of ant. Placed anus. 15 were anorectal agenesis without fistula. 5 had recto-urethral fistula. 7 cloacal variety of ARM. 1 Rectal Artesia. 37 patients underwent ASARP, staged heaving colostomy followed by restoration of colon. 4 of them done in single stage. 22 patients underwent PSARP. 7 had PSARVUP of colostomy later on. Among 66 patients 14 were neonate. 12 were infant. 32 patients were between 1-5 yrs. 8 Children older than 5 yrs. Commonest type in male Rectourthral fistula. In femalevestibular anus. Total 5 patients had assoc. anomalies. 1 of them had RT lung agenesis with rudimentary Left thumlb. 1 was of Downs syndrome. 3 pts had PDA. All patients given anal dilatation schedule and flowered up in regularly.

Results :

No significant complication during our study period except anal incontinence in 1 pt. prolapsed of anal meeosa in 2 pt and anal stenosis in 1 pt. 2 patients died in immediate post operative period.

Discussion :

Anorectal Malformations include a wide spectrum of defects in the development of

the lowest portion of the intestinal and urogenital tract. Many children with these malformations are said to house an imperforate anus because they have no opening where the anus should be perineal fistula is anointed with good pretenses arouse in wither sees and involves a closed anus with a small collection that opens to the perineal body. The anorectacl agenesis without fistula presents with abdominal distention and features of intestinal obstruction. Those having Recto-urethral fistula present's with passage of meconium through urine. vestibular anus presents with h/o passage of meconiun through vagina or vulva . Ectopic, and anteriorly placed anus usually presents with constipations specially after weaning period. Some may present with single opening on the h/o passage of urine & Meconium through same orifice some may present as bucket handle type or as muco-cutancous fistula.(9) The radiologic evaluation of a newborn with imperforate anus includes an abd Ultrasound to evaluate associate urologic anomalies.(10) A cross table lat radiograph can help to show the air column in the distal rectum in a small percentage of patients for whom clinical evidence does not delineate it in 16-24 hr.(11) in our study, the perineal fistula were easy to diagnose in the first 6 hrs. Obceiating the need for radiography. Abd USG was carried out as routine is all cases and there were no associate renal anomalies in all cases.

The decision to perform an anoplasty in the newborn period or to delay the repair and to Perform a colostomy is based on the physical examinations of the infant. The appearance of the perineum, and any changes that occour over the first 24 hr of life (6,7)

Patients were managed with anoplasty (Y-v) ASAP single stage/mutistaged, PSARP, PSARVUP, multistage according fo variety followed ley anal dilatation. Anorectal malformation patient have better outcome with greatly improved modern surgical techniques and neonatal care facilities during the last few decades .Early survival is a rule today except in some rare cases with cardiac, urogenital or chromosomal anomalies that are not compatible with life. Presently, the overall long term functional outcome expectancy in terms of anal and urinary in continence is relatively optimistic. A majority of patients of reaching adolescence and adulthood are able to maintain themselves as socially continent (8). Current mortality rates are low after repair of ARM, and most of these death are attributable to problems with other organ system. Particularly CVS & CNS sepsis (over whelming infection) is occasionally a problem in patients with complicated high anomalies involving the Genitourinary system. In our series these were 2 death 3.3%.

Conclusion:

Our study was of very short period, having a small no of patients. We have no NICU support no facility to do Echodiogoaphy of the newborn. No support for TPN to do single stage ASAP to reduce patients morbidity and morality. In spite of all the limitations our results regarding common complication and death was satisfactory. Still we need broad based long term follow up to evaluate the managed ARM patients regarding results regarding continence and reproductive function. We need urgently to establish NICU & to increase supplied preoperative facilities to increase the domain of our service.

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ORIGINAL ARTICLE

Evaluation of Volar Locking Plate Osteosynthesis for Unstable Distal Radial Fracture

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ABSTRACT

Distal radial fractures are most common (20%) of whole skeletal injuries. Majority are considered as unstable that requires surgical fixation because in non-surgical treatment an obvious clinical deformity developed. More over closed treatment cannot produce an adequate result for unstable distal radial fracture. This prospective interventional study was conducted over a-period of one and a half year between January 2010 to June 2011 at Dhaka Medical College Hospital(DMCH), National Institute of Traumatology and Orthopedic Rehabilitation (NITOR) and Private Hospitals at Dhaka. The result of Volar locking plate osteosynthesis for unstable distal radial fracture demonstrated excellent to good result in majority of cases.

Key Words: *Unstable distal radial fracture, Volar locking plate, Osteosynthesis.*

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Introduction :

The distal end of the radius begins at the proximal border of the pronator quadratus and ends at the carpometacarpal articulation and Hughston reported a 92% failure in non operative treatment of fractures of this location(1). Severely displaced fractures tend to heal with malunion when treated conservatively and it does not prevent early collapse(2). If the joint surface is damaged and heals with more than 1-2 mm of unevenness, the wrist will be prone to post-traumatic osteoarthritis(3). Use of Volar locking plate oteosynthesis(VLPOS) in unstable distal radial fracture allows direct restoration of the anatomy, stable internal fixation, a decreased period of immobilization, and early return of wrist function. Locking plates address metaphyseal comminution

and preserve articular congruity(4). In this study the distal radius fractures which needed open reduction and internal fixation(ORIF) was dealt by "Volar locking plate oteosynthesis" for "Good Functional Hand", and this should be considered as a better technique in the treatment for potentially unstable distal radial fractures.

MATERIALS AND METHODS

This was a prospective interventional study.

Inclusion Criteria:

1. Unstable fractures of distal radius will be included.
2. Only closed fractures will be included.
3. Fractures less than three weeks old.
4. Cases are purposively selected irrespective of sex, occupation, causes of injury and associated injuries.
5. All patients after epiphysis closure.
6. Age before 18 and after 70 years.

Exclusion criteria

1. Undisclosed/stable fractures treated by non operative methods.
2. Before 18 and after 70 years.
3. Infected cases and open fractures.
4. Fractures older than three weeks.

FINAL OUTCOME:

Criteria for Anatomical Results :

Sarmiento and Latta's modification for criteria for anatomical results by means of radiological out line (5).

Result	Criteria
Excellent (Grade 1)	**No or insignificant deformity** Dorsal angulations not exceeding 0° (neutral) Radial shortening of less than 3 mm. Radial deviation loss not more than 4°
Good (Grade 2)	**Slight deformity** Dorsal angulation-1^0-10^0 Radial shortening-3-6mm Radial deviation-5^0-9^0
Fair (Grade-3)	**Moderate deformity** Dorsal angulation- 11°-14° Radial shortening-7- 11 mm Radial deviation- 10°- 14°
Poor (Grade 4)	**Severer deformity** Dorsal angulations- at least 15° or more Radial shortening- at least 12mm or more Radial deviation- 15° or more.

Criteria for Functional Results:6

Sarmiento's modification of the criteria for functional assessment outline.

Result	Points
Residual deformity	
Prominent lunar styloid	1
Residual dorsal tilt	2
Radial deviation of hand	2 to 3
Point range	0 to 3

Subjective evaluation	Points
Excellent- No pain, disability or limitation of motion	0
Good- Occasional pain, slight limitation of motion	2
Fair- Occasional pain, slight limitation of motion, feeling of weakness in wrist, activities are slightly restricted.	4
Poor- Pain, limitation of motion, disability, and activities are more of less restricted.	6
Point range	0 to 6

Objective evaluation	Points
Loss of dorsi-flexion	5
Loss of Ulnar deviation	3
Loss of supination	2
Loss of palmar flexion	1
Loss of radial deviation	1
Loss of circumduction	1
Pain in distal radio-ulnar joint	1
Grip strength *-60% or less of opposite side	1
Loss of pronation*	2
Point range	0 to 5

Complication	Points
Arthritic change	
Minimal	1
Minimal with pain	3
Moderate	2
Moderate with pain	4
Severe	3
Severe with pain	5
Nerve complication (median)	1 to 3
Poor finger function	1 to 2
Point range	0 to 5

End-result point Ranges	
Excellent	0 to 2
Good	3 to 8
Fair	9 to 20
Poor	21 & above

Criteria added by Sarmiento.

RESULTS

Anatomic evaluation:

Table-I : Distribution of radiological findings at different stages of the patient study

Stage	Radial shortening (mm) <3				Radial deviation (degree)				Dorsal angulation (degree)			
	<3	3-6	7-11	≥12	0-4	5-9	10-14	>15	0	1-10	11-14	≥15
Pre-operative	1 (6.7)	11 (73.33)	2 (13.3)	1 (6.7)	1 (6.7)	10 (66.7)	3 (20.0)	1 (6.7)	2 (13.3)	11 (73.3)	1 (6.7)	1 (6.7)
Final follow-up	2 (13.3)	10 (66.7)	2 (20.0)	1 (00)	2 (13.3)	10	2 (6.7)	1 (6.7)	2 (13.3)	10 (66.7)	2 (13.3)	1 (6.7)
	P= 0.001				P=0.001				P= 0.001			

Highly significant. It was tested by 't' test.

Final anatomical outcome:

Table-II : Distribution of anatomical outcomes according to Sarmiento and Latta's modification for criteria for anatomical results by means of radiological out lined by Lidstorm.

Stage	Excellent	Good	Fair	Poor
Pre-operative	0 (0.0%)	8 (53.33%)	4 (26.67%)	3 (20.0%)
Final anatomical Score	2 (13.33%)	10 (66.67%)	2 (13.33%)	1 (6.7%)

Final functional outcome:

Table-III : Distribution functional outcomes according to Sarmiento's modification of the criteria for functional assessment outlined by Gartland & Werley.

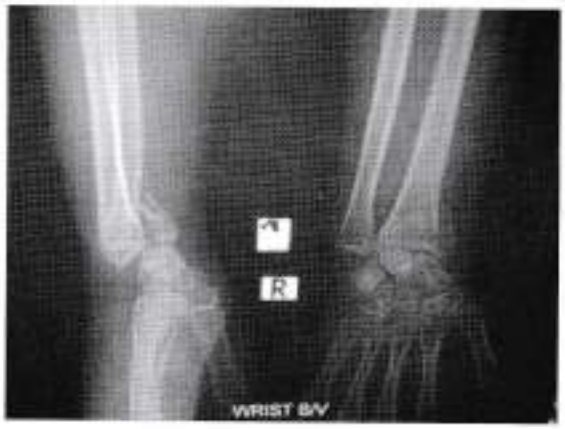
Stage	Excellent	Good	Fair	Poor
Pre-operative	0 (00.0%)	7 (46.67%)	7 (46.67%)	1 (6.7%)
Final functional Score	3 (20.0%)	9 (60.0%)	2 (13.33%)	1 (6.7%)

Overall functional outcome:

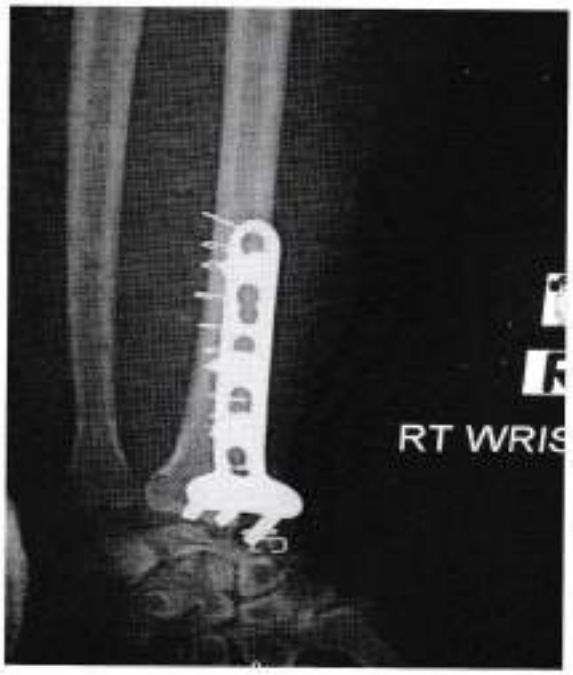
Table - IV : Distribution of the results according to the overall functional outcome

Result	No. of patient	Percentage (%)
Satisfactory (Excellent & Good)	12	80
Unsatisfactory (Fair & Poor)	3	20
Total	**15**	**100**

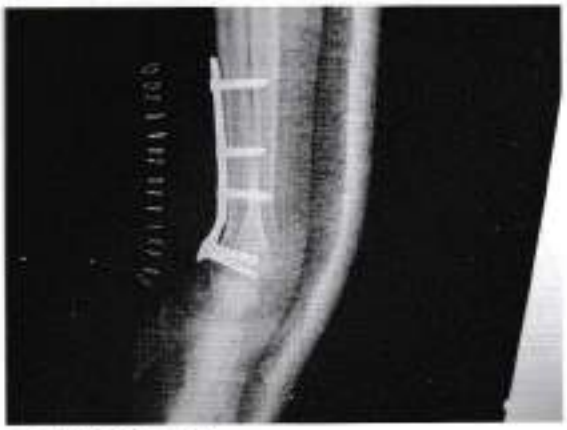
Preoperative X-ray



Follow up X-ray



Follow up X-ray



DISCUSSION:

This study designed to find out an appropriate and accepted technique for treatment of unstable distal radial fracture. Kevin et al. stated that the best treatment for an inadequately reduced fracture of the distal part of the radius is not well established.(6,7) They collected data from patients undergoing volar locking plate osteosynthesis of an inadequately reduced distal radial fracture and finally found that the volar locking plate osteosynthesis appeared to provide effective fixation for the treatment of inadequately reduced distal radial fractures. It was a prospective study. Lattmann et al. did an study to evaluate functional, radiologic, and subjective outcome after volar locking plate osteosynthesis (VLPOS) for unstable distal radial fractures (DRF).(8) In this study, we also evaluated the results of volar locking plate osteosynthesis for unstable distal radial fractures and we also did a prospective study.

Most of the patients were victim of fall on out-stretched hand (9 in number) 60% and the rest 40% (4 in number) were the victim of MVA. Arvind and Nana showed that the typical mechanism of a displaced distal radius fracture is fall on an outstretched hand. They also stated that this type of injury results in tensile forces across the volar surface (compression side), compressive forces on the dorsal surface (tension side), and supination of the distal fracture fragment.(9) Regarding post operative complication, in the study of Jesse B. Jupiter et al.(10,11) all the complications of his work were considered as minor. In the study of Jorge Orbay (2005),(12) he concluded that, stiffness and reflex sympathetic dystrophy (RSD) are not uncommon with this technique. In our study one patient developed persistent wrist pain and one experienced reduced grip strength which was improved by adequate analgesics and physiotherapy. Another patient developed carpal tunnel syndrome that, needed surgical release. In a study of Chappuis (2011)(13) only one case of carpal tunnel syndrome was noted which was managed by surgical release. In this study the anatomical results were evaluated by the radiological criteria outlined by Lidstrom.(14) Lattmann in a study, in this year also used the Lidstrom.'s score for evaluation of the outcomes of his study.(8) According to Sarmiento and Latta's modification criteria for anatomical results by means of radiological out lined by Lindstorm,14 in our study, final follow up results showed,13.33% had excellent and 66.67% had good results. So, the satisfactory outcome was 80%.

On the basis of Sarmiento's modification criteria for functional assessment outlined by Gartland and Werley,(15) in our study, 20% had excellent and 60% had good results. So the satisfactory outcome was 80%. The findings were nearer to the many result (16) where the satisfactory results were 75%. The overall experience with volar locking plate osteosynthesis for unstable distal radius fracture has been favorable, and for this reason the technique has gained widespread acceptance recently. It is an easy to learn, simple, and reproducible

procedure that has improved the outcome of this common injury.(12)

CONCLUSION:

Unstable distal radial fractures are common injuries. This study reveals that proper diagnosis and early treatment with volar locking plates is the key to success.

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ORIGINAL ARTICLE

Interrupted X suture is better technique than continuous mass closure in midline vertical incision to prevent burst abdomen

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ABSTRACT

Background: *Abdominal wound dehiscence is a common complication of laparotomy in our country. The incidence of such complication is 3% with a mortality rate of 25%. Aims: To find out the better option in closing midline laparotomy wound in preventing burst abdomen.* ***Material and*** **Methods:** *One hundred patients undergoing emergency laparotomy through a vertical midline incision were selected after informed consent, to either a continuous group, or an interrupted X technique in the surgical wards of Sir Salimullah Medical College, Mitford Hospital. Main outcome variable was burst abdomen. Predictor variables were intra-peritoneal sepsis, abdominal distension, cough, malignancy, diabetes, anaemia, uraemia, hypo-albuminaemia. The risk of burst abdomen and in each group and relative risk were calculated.*
Results: *There were one burst abdomen in the X suture group and six bursts in continuous mass closure group. The relative risk of burst abdomen was 0.16 in continuous group as the reference category (95% CI, 2=4.74 p=0.04). Conclusion: The risk of burst abdomen is less with interrupted X method of closure.*

Key words: *Burst abdomen, Interrupted X suture, Wound dehiscence.*

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INTRODUCTION:

Wound and their management are fundamental of the practice of surgery. The surgeon's tasks to minimize the adverse effects of wound remove and repair damaged structures, harness the process of wound healing to restore function.(1)

Vertical abdominal incisions offer the surgeon superior exposure for most intra-abdominal procedures. The most frequent abdominal incision is probably midline incision.(2) Wound complication after midline incision do, however occur. In burst abdomen all the layers of the abdominal wall disrupts and the viscera are extruded.(3) Burst abdomen often reflects an error of judgment on the part of surgeon, and the elimination of post operative burst abdomen may be within the jurisdiction of the operating surgeon.(4) The chances of post operative burst can be predicted. Patients identified as being high risk may benefit from close observation and early intervention.

Burst abdomen is a continuing problem for the general surgeons, as the incidence may reach 3% of major laparotomy wounds.(5) It usually occurs between 5th to 14th post operative days. Mortality rate of burst abdomen is 25%.(6) More than 44%7 burst abdomens carries with it a subsequent morbidity.(7) Many patients in our country have a poor nutritional status and patient presents with peritonitis in the secondary / tertiary care is often delayed. This makes the problem of burst abdomen more common and dangerous in our subcontinent as compared to the western countries.(8) Burst abdomen results from multi-factorial causes. Its incidence is higher in aged patient with concomitant disease as diabetes, jaundice, anaemia, renal failure, malnutrition, advanced malignancy, obesity, chronic obstructive pulmonary disease, wound infection and steroid abuse.(9) Wound infection is the most important single factor in the development of burst abdomen and incisional hernia.(10)

Burst abdomen is related to technique of closure of abdomen and suture used. Numerous studies have been conducted evaluating bewildering variety of closure technique and suture material.(11) The current option is running mass closure of abdomen in both emergency and elective setting, as there is no significant difference in most of the studies.(12)

Interrupted X suture is a new technique was invented by surgery department of All India Institute of Medical Science (AIMS) and Department of Biomedical Engineering, Indian Institute of Technology, Delhi.(13) This prospective study was designed to assess the efficacy of Interrupted X suture with single layer mass closure in midline laparotomy incision in our setup.

MATERIALS & METHODS:

A total number of 100 patients presenting to the surgery wards for the emergency laparotomy were enrolled in this study. The study period ranges from july 2009 to June 2011. The setting was general surgical wards of Sir Salimullah Medical College, Mitford Hospital, Dhaka. The study was approved by the Institutional Ethical Committee of Sir Salimullah Medical College, Dhaka.

The aims and objectives of the study along with its procedure, methods, risks and benefit of the study were explained to the patient or their guardian in an easily understandable language and then informed written consent was taken from each patient or his / her guardian. The

sampling procedure was purposive. Among them, fifty patients were included in Group-I, who underwent vertical abdominal incision closed by continuous mass closure and other fifty patients in Group-II, underwent vertical abdominal wound closure by interrupted X suture. Randomly every alternate patient were selected for group-I and group-II.

Continuous closure was performed using No.1 Prolene suture (Polypropylene, Ethicone), each place 1.5-2cm from the linea-alba edge and successive bites 1cm from each other. The closure was performed by the senior doctors.

Interrupted closure was performed using No.1 Prolene suture. A large bite was taken outside, in 2cm from the cut edge of linea-alba. The needle emerged on the other side from the inside out diagonally 2 cm from the edge and 4 cm above or below the first bite. This strand was crossed or looped around the free end of the suture and continued outside, in diagonally 900 to the first diagonal. The two ends were tied just tight enough to approximate the edge of linea-alba, taking care not to include bowel or omentum between the edges. Each of the patients was followed for four weeks after surgery to determine the risk of burst abdomen.

Measurement of variables:

The main outcome variable was presence of an abdominal wound dehiscence or burst. This was recorded as binary variable-present/absent. A burst was considered present, when the intestine, omentum or other viscera were seen in the abdominal wound.

Statistical Analysis:

The data obtained in this prospective study through the questioners were scrutinized for any error or omission. All the relevant data were recorded in Microsoft Excel (2007). Statistical analysis was performed by using SPSS version 16 for windows (SPSS Inc. Chicago, IL), categorical data were expressed as percentage and were compared between groups using "Chi-Square test". A p-value less than 0.05 considered as the level significance. Co-relation between variables was assessed by multiple logistic regression tests.

RESULTS:

A total number of 100 patients were enrolled in the study. Among them 50 patients were in group-1, abdominal closure by continuous mass closure and other 50 in Group-II, abdominal wound closed by Interrupted X suture.

The majority of the patients (45%) were below 40years. The mean age of group-I and group-II were 41.58(±15.614) and 43.52(±13.123) respectively. There is male predominance (66% male and 44% female) in this study.

Perforation of the gastro-intestinal viscous was present 30% & 36%, intestinal obstruction 26% & 30%, burst appendix 26% & 10% and malignancy was present 6% & 6% in group-I and group-II respectively.

The pre-operative predisposing factor, peritonitis 84% present in group-I and 36% present in group-II. Other predisposing factors were cough (28% & 16%), anaemia (18% & 24%) and co-morbid disease 22% & 18%) were present in continues and Interrupted X group.

There were 6 burst abdomens out of 50 patients in continuous group and 1 burst abdomen among 50 patients. The relative risk of burst abdomen in interrupted X suture was 0.16, 2= 4.74 and p=.04. Burst

abdomen was significantly lowered in interrupted X suture group.

The multiple logistic regression tests show no significant role of predisposing between continuous and interrupted X suture group.

DISCUSSION:

One hundred patients of acute abdomen, admitted in the Department of Surgery, Sir Salimullah Medical College & Mitford hospital (SSMC&MH) needs emergency laparotomy were enrolled in this study. There was no elective case of laparotomy. As there is increase use of Computerized Tomography (CT), Positron Emission Tomography and diagnostic laparoscopy, the number of elective case of laparotomy become reduced in the hospital.

The patients were divided into two groups, depending on the type of abdominal closure. Patients of two types of closure were selected for grouping by alternative choice, while admitted in the hospital. Laparotomy was done by upper mid-line, lower midline and mid-midline. There was no statistically significant difference was observed in two groups regarding the type of incisions ($p>0.05$).

In current study, risk factors i.e. pre-operative and post-operative risk factors were also studied. Abdominal distension and vomiting were significantly related with burst abdomen. Similar findings were observed in different study.(13,14) Intra-abdominal pressure increases due to abdominal distension and vomiting, causing necrosis of linea-alba and it fails to hold suture during a bout of coughing and sneezing, leading to burst abdomen.

In present study 7% (7/100) of the patients were suffered from burst abdomen. In similar kind of studies 2% and 9% burst abdomen were observed in other study (3,4).

In our set up many of the patients of acute abdomen who needs emergency laparotomy, had malnutrition and other co-morbidities. The condition gets worse with disease like tuberculosis, typhoid and cancer. Which are detrimental to healing, were present among the patient. There was profound necrosis of the aponeurotic layers of abdomen.

Six patients of continuous group (6/50) and one patient of interrupted group (1/50) had burst abdomen. It indicates that the relative risk of burst abdomen was more in continuous mass closure than the interrupted X suture. The reason of such difference may be, reducing cut-out force of interrupted X suture in comparison to continuous mass closure. On the other hand, continuous mass closure produces a 'hack saw' effects at the tissue suture interface causing 'Gigli-saw' effects due to and fro movement of suture. Due to varying tension of different parts of abdominal wall on breathing and movements, gradually causes the suture to cut through linea-alba leading to augmentation of burst abdomen. Due to this reason interrupted X suture technique provides better protection than continuous mass closure. Therefore, all the findings of this study indicate that out-come in laparotomy patients closed by interrupted X suture techniques better than continuous mass closure.

CONCLUSION:

Prevention is the best way of managing burst abdomen. Burst abdomen can be reduced using interrupted X suture. Peritonitis is most common predisposing factor. Abdominal distension and vomiting

are significant factors for burst. Malignancy, uraemia, jaundice and hypoxia did not make substantial contribution to the risk of burst abdomen.

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ORIGINAL ARTICLE

Road Traffic Accidents by Deshi Made Three Wheeler (Kariman, Nasiman, Alam Sadhu) A study in Sadar Hospital, Satkhira

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ABSTRACT

Bangladesh is one of the higher Incidence prone country regarding road traffic accident. According WHO Report 1.25 million people died in R.T.A in 2013. Bangladesh have near about 21000 K.M of roads & highways and many types of vehicles run through the local roads and highways daily . These vehicles cause road traffic accidents daily. Among these incidence-Locally made Three Wheelers popularly known Nasiman, Kariman, Alam Sadhu etc. are one of the common cause. These Three Wheelers are made by local mechanics. They are popular among the people due to easy availability & low fare . This study was done in Ortho Surgery Department, Sadar Hospital, Satkhira from January 2013 to December 2014. Total number of R.T.A victims caused by locally made Three Wheelers were 105, all of them admitted in Ortho Surgery ward. Most of the patients were male (78, 74.28%) and (27, 25.71%) were female. Highest age group were 19-32 years (48 - 45.71%), majority of patients belong to poor socio economic condition (68-64.76%). Most victims were passengers of this Three Wheelers and occurred in highways and Urban areas (86-81.9%). The drivers of the vehicles had no license, on the other hand these vehicles had no road fitness and root permit. They violated the motor vehicle act (1983). The law enforcing authorities should be alert and give proper law full steps to reduce road accidents by this Three Wheelers.

Key word : *Deshi Made Three Wheelers, R.T.A*

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Introduction:

Road traffic accident causes death about 1.25 million and injures 50 millions people annually in the world.(1) Road traffic accidents is one of the common cause for death under 50 years in developed countries.(2) It has become difficult for poor socio economic people to bear the treatment cost in these casualties. R.T.A is now social curse of modern world. It is third major cause of diseases, clinical depression and heart disease are first and second respectively. This country has 16 crores population. Villages of Bangladesh are adjacent to highways. Feeder roads of these villages are connected with these highways in bizarre (unplanned) fashion. There is no proper trafficking system in these rural areas and on going highways. Maximum highways have no road divider. People are not proper aware of traffic system. These rural roads and highways are occupied by local made Three Wheelers. Different types of vehicles with different velocities run through these roads. This Deshi made Three Wheelers popularly known as Kariman, Nasiman, Alam Sadhu are made by Shallow Engine. Due to low manufacturing cost, as well as low fare these vehicles become popular among the passengers and local drivers. Frequent road accident occurs in Rural, Urban and Highways due to poor driving knowledge and inadequate auto mobile system of these vehicles.

Satkhira is a district on south west part of this country. It communicates with Upazilas and other districts only by roads. There is no railway or river transport. So the road mishap rate is higher in this district. All roads and highways of Satkhira are occupied by different types of vehicles, Deshi made Three Wheelers are common among them. Satkhira Sadar Hospital is the only secondary hospital in this area. So the maximum R.T.A victims are being treated in this hospital. This study is done only on R.T.A victims by Three Wheelers (Deshi Made).

Material and Method:

It was a prospective study done in the Ortho Surgery ward of Sadar Hospital, Satkhira from January 2013-December 2014 & the victims of R.T.A Including drivers, passengers and pedestrians hit by Deshi made Three Wheelers (Nasiman, Kariman, Alam Sadhu) who were admitted in Ortho Surgery ward of Sadar Hospital included in this study. Data like - type of Injuries, Socio economic status, demographic profile, type of victims and geographical distribution of accidents were collected. Type of injuries and treatment out come were also recorded.

Results:

Tota 928 R.T.A victims were treated in emergency of Sadar Hospital, Satkhira. Among these 328 cases were admitted in the Ortho Surgery ward during this study period, Out of 328 admitted cases 105 (32.01%) were victims of Deshi made Three Wheelers. Among 105 patients male 78 (78.28%) and female 27 (25.71%). Major incident of victims 48 (45.71%) was seen among 19 - 32 years. Followed by 35 to 45 years age group 26 (24.76%) and 11-18 years age 16 (15.23%). Maximum accident occurred in high ways and Urban areas (86-81.09%), followed by rural areas (19, 18.09%). People of poor socio economic condition were the major victims 68 (64.76%) followed by middle class 30 (28.57%) and higher class only 07 (6.6%). Abrasions on different parts of the body were common among all admitted cases (100%), lacerated wounds present in (86, 81.09%) crush limbs 11 (10.48%), Long bone fractures 52 (49.52%), Fracture

of Ribs, Scapula, Vertebra etc. 22 (20.95%), Pelvic Fracture 11 (10.48%). Passengers of these Three Wheelers (Nasiman, Kariman, Alam Sadhu) 65 (61%) were the major victims, followed by passengers of other vehicle 27 (25.71%), Pedestrian 13 (12.38%).

Table-I

Age distribution of R.T.A patients by Deshi made Three Wheelers (n-105)

Age in years	Number of victims	Percentage (%)
Upto 0-10	3	2.85
11-18	16	15.23
19-32	48	45.71
32-45	26	24.76
46-50	8	7.62
Over 50	4	3.81

Table-II

Geographic distribution of Road traffic accident (n=105)

Area of Occurrence	Number of victims	Percentage (%)
Rural	19	18.09
Urban & Highways	86	81.09

Table-III

Socioeconomic condition of the victims (n=105)

Socioeconomic Condition	Number of victims	Percentage (%)
Low	68	64.76
Middle	30	28.57
High	07	6.6

Table-IV

Pattern of Injury (n=105)

Pattern of Injury	Number of victims	Percentage (%)
Multiple Abrasions	105	100
Laceration	86	81.9
Crush Injury (Limbs)	11	10.48
Long Bone Fracture	52	49.52
Fracture Rib Scapula Vertebra	22	10.95
Pelvic Fracture	11	10.48

Table-V

Treatment outcome (n=105)

Outcome	Number of victims	Percentage (%)
Completely Cure	68	64.76
Disabled	18	17.14
Referred to Tertiary center	14	13.33
Death	05	4.76

Discussion:

Modern civilization suffers many curses, road traffic accident are most common of them.(3) Though R.T.A was in 9th position two decades ago but it will be the third leading cause of death by the year 2020 according the world report.(4) It has become burning problem for the developing countries. The incidence rate of R.T.A is 10-70 times more common is developing countries than the developed countries. Modern world takes many steps to prevent R.T.A but on the other hand it is going to worse in developing countries(4). Along with Urbanization the total road network is increasing but save road facilities have not improved up to the mark. Bangladesh has total road network about 21,000 K.M. BRTA registered vehicles including Bus, Mini Bus, Truck, Mini Truck, Motorcycle run through these roads, on the other hand Deshi made three wheelers (Nasiman, Kariman, Alam Sadhu) also occupy these roads.

The Three Wheelers (locally made) popularly known as Nasiman, Kariman etc. become acceptable to the local people

due to there increasing number, easy availability and low fare . Inter district buses are not easily available on highways and do not maintain time schedule. People become puzzle with this service. This Deshi made Three wheelers are made of flat bed tricycle and being motorized by Shallow Diesel Engine (which is usually imported for Irrigation). These vehicles are not being equipped with modern auto mobile system and have inadequate breaking system. Most of three wheelers devoid of horn. Drivers of these vehicles have no proper training regarding driving. This type of three wheelers frequently run through roads and cause road mishap.(5) Roads and Highways are the only communicating way for Satkhira with other districts. This district has no Railway or River pathway. So the number of vehicles on the roads and Highways in this district are numerous. Satkhira has land port-Bhomra which communicates with India and export-Import goods pass through this port Which are transported to the different parts of Bangladesh Via these roads. For this reason the roads and highways are always busy and road mishap occurrence frequently. Satkhira has many Shrimp field and these shrimps are exported Via these road by different vehicles Which also play major role for busy traffic causing road accidents. Total population of this district is 22 lakhs most of them are villagers and major part of them dependent of these Deshi made three Wheelers for transportation. Due to frequent movement of these Three Wheelers along the highways and village roads the accident rate is higher and the victims are passengers, drivers and pedestrians. Satkhira Sadar Hospital is 100 bedded and only secondary hospital in this district. Ottho Surgery and Surgery department daily deal with these victims of R.T.A. Many of patients are the victim of R.T.A caused by Deshi made Three wheelers. Total 928 patients were treated in the emergency and 328 cases admitted in Ortho Surgery Ward in this study period. Out of 328 patients 105 were the victims of R.T.A caused by Deshi Made Three Wheelers. Among these 105 admitted patients male were predominant 78 (74.28%). Predominance of male is due to they are the chief earning people and do travel more frequently than female. Globally the victim age group 15-44 area occupies 50% road victims, in this study it has been proved.

Bangladesh is a poor country, most people live in Rural area. Transportation facilities in these areas are poor as well as fare is higher. Deshi made Three Wheelers fulfill this lackings.5 This study reviews that most victims were form rural area and had poor socioeconomic condition 68 (69.76%) followed by middle class 30 (28.57%). According to the national data most victims of R.T.A are Pedestrians 49%,followed by Passengers 37% and 14% drivers. But in this study most victims were passengers of Deshi made Three Wheelers 65 (61%). This data proved that Nasiman, Kariman, Alam Sadhu are not safe vehicle at all. These vehicles are devoid of modern equipments, poor breaking system. These Three Wheelers pollute environment by there noisy sound as well as toxic fumes.

The Total number of accidents were in highways and Urban areas 78 (74.20%) followed by rural areas 27 (25.71%). This study proved that locally made Three wheelers are completely unsafe for the passengers.

R.T.A becomes the most burning problem for Bangladesh. Main predisposing factor

are increase population, number of vehicles and the rapid urbanization, social restlessness, lack of proper planning etc. R.T.A occupies major headlines in daily newspapers. These Deshi made Three Wheelers violate motor vehicle act because they have no root permit, drivers have no license. Govt. & Judicial System banned these vehicles on Highway but it is a matter of great regret that the Three wheelers run through the high way regularly and cause road mishap daily. Law employing agency should take proper step to stop running these unscientific vehicles which will produce fruitful effect in reducing accident.

Conclusion:

R.T.A becomes social curse to the people of Bangladesh. It is the time to rootless the social curse by banning these Deshi made Three wheelers from roads and highways. Seminar, Symposium and publicity must be increased for public awareness. It is our misfortune, these three wheelers frequently run through the highways. The availability of inter district bus should be increased with maintaining proper timetable and fare should be cheaper. On the other hand. the concern authority should take proper step to modernize vehicles and give proper training to the drivers and licensed them which contribute the increase safety to the passengers and others.

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ORIGINAL ARTICLE

Foreign Body In ENT Practice At Upazilla Health Complex-Scope & Challenges In Bangladesh.

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ABSTRACT

Introduction: *The otolaryngologist deals with five among the seven natural orifices. Foreign bodies in ENT account for 11 % of emergency cases in otorhinolaryngology. Regarding management Removal of the FB can vary from very easy to very challenging & frustrating. In Bangladesh at Government level Upazilla Health complex is the first recognized institution where primary treatment is given . Most of the Upazilla Health complex is now of 50 Bed , there is consultant ENT post available . But lack of manpower and instruments it is very challenging situation to manage the Foreign body in ENT at Upazilla level.* ***Objectives:*** *To present the existing situation of ENT management of upazilla level in Bangladesh as well as to exchange our experience at upazilla level with our limitation in the management of foreign body at upazilla level.* ***Materials and methods:*** *It is a Cross sectional study. Conducted from December 2013 to Dec 2014 at Purbadhala , Netrokona ; Bhuapur, Tangail and Kaliganj UHC Gazipur. Sampling technique was Purposive sampling. Those patient who presented with FB ear , nose ,throat to me during the said duration in 3 different UHC are included in this study.* ***Results:*** *Most of the patient 's age range is 1-10 years .Male predominant 34(54%), whereas female are 29 (46%). Foreign body according to site Ear 27(43%), Nose 23(36%),Throat 13(21%). Regarding Management , Foreign body removed without General Anaesthsia in case of 47 patient , under General Anaesthesia 11 patient , Early referred case was 5.* ***Conclusion:*** *Foreign bodies are common in adult and pediatric ear, nose and throat. To achieve a good results we need supply of proper instruments for Foreign body removal as well as trained person ,manpower , anaesthesiologist .*

Key words : *Foreign Body, Upazilla Health complex , scope , challenge.*

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Introduction

Nature determined that human being posses seven orifices. The otolaryngologist deals with five. Children are naturally curious about their surroundings & about these orifices! They are inclined to place toys, food stuff & household articles in the ear nose & throat. FB lodged within ear, nose, larynx, trachea, pharynx or esophagus may present as a minor irritation or a life threatening problem.(1) Most commonly seen in children who have inserted them into their own ears. Patient presenting with FB in the nose and ear are predominantly children in the 2 to 8 age group(2). Adult are often seen with cotton buds or broken match sticks which have been used to clean or scratch the canal. Some adults entres the melted candle wax into their ear canal to get relief of so called "Sannik." Patients are more likely to be male and of low socio economic status.(3) FB into ear is associated with pre existing irritative diseases(4). A useful classification is animal vegetable or mineral as removal techniques will vary according to composition(5). Regarding management Removal of the FB can vary from very easy to very challenging & frustrating. Two-thirds of FB may successfully removed by Emergency or General practitioner as these are irregular shaped objects with soft graspable parts.(6) In our set up the required micro-instrument is not available to General practitioner so it is better to early referral to ENT surgeon. In Bangladesh at Government level Upazilla Health complex is the first recognized institution where primary treatment is given . Most of the Upazilla Health complex is now of 50 Bed , there is consultant ENT post available .

Aims and Objectives

To present the existing situation of ENT management of upazilla level.

To exchange our experience at upazilla level.

To show our limitation in the management of foreign body in ENT at upazilla level.

Materials and Method

This was a cross sectional study conducted at Purbadhala , Netrokona ; Bhuapur, Tangail and Kaliganj UHC Gazipur.from December 2013 to Dec 2014 consecutive 63 patient suffering from Foreign body ear ,nose ,throat to us during the said duration in 3 different UHC are included purposively in this study.

Results of the study : Most of the patient 's age range is 1-10 years .Male predominant 34(54%), whereas female are 29 (46%). Foreign body according to site Ear 27(43%), Nose 23(36%),Throat 13(21%). Nature of Foreign, Body hygroscopic Foreign body revealed 14(22%), non Hygroscopic Foreign body 49 (78%). Regarding Management , Foreign body removed without General Anaesthsia in case of 47 patient , under General Anaesthesia 11 patient , Early referred case was 5.

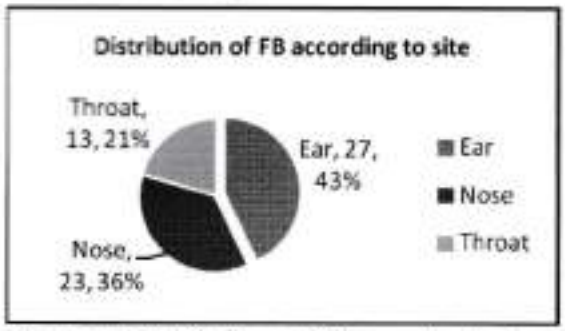
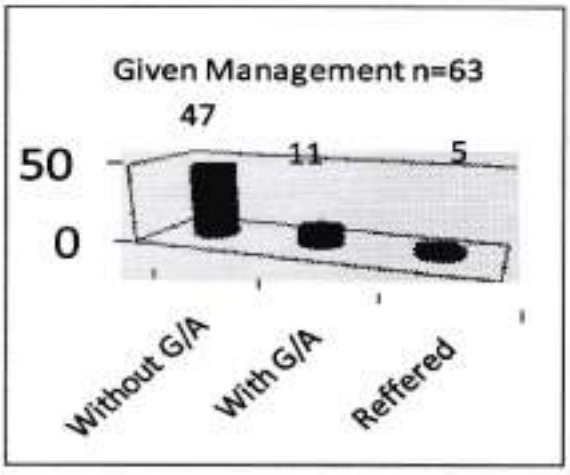


Figure I: Distribution of FB according to site.



Discussion:

Foreign bodies in ENT account for 11 % of emergency cases in otorhinolaryngology.(6,7) Insertion of foreign bodies by the little children may be precipitated by boredom, frustration and also mimicking the unhealthy habits of ear and nose picking by adults. Literacy rate seems to be an important factor for avoiding FB insertion or any delay to seek treatment.8 The male predominance and age structure as revealed by the present study were supported by other studies.,(9,10). Most frequent case was 1to 10 years . in our study Forein body in external auditory canal was 27(43%) slightly higher than Foreign body in the nose . There was a preponderance of foreign body of ear (43%), as evident by present study followed by nose foreign body (21%) and nose (23%). This was contrary to other study where nose FB was preponderant.(1) It supports many international literatures.(6) About location, the most frequent anatomical site of FB encounter in ear is bony part of external auditory canal. In nose are between the inferior turbinate and the septum and anteriorly to middle concha. Insects usually enter the external auditory canal when it gets partially embedded in the wax and creates abrasions during its struggle. Its movement produces itching thus tempting the patient to scratch and produce further abrasions. This maneuver may even result in tympanic membrane perforation. The insects especially arthropods in either mineral oil, lignocaine solution or betadine. Methods used to remove foreign bodies of ear were suctioning, syringing, forceps removal, hooks and probes. For nasal foreign bodies methods used for evacuation were suctioning, forceps, hooks and probes. Foreign body throat was removed with forceps. Two case of Impacted coin removed by the author by straight bladed laryngoscope under G/A due to lack of oesophagoscope .There is no supply of Govt. instrument. The investigator done this with his own instrument for self satisfaction . Usually FB removed in OPD , Guardian and other people causing problem during removal. Anesthesiologist not always present .

Conclusion.

Foreign bodies are common in adult and pediatric ear, nose and throat. The nature of foreign body and site of lodgment may differ in different ages and between different places. They can be of different types from living to non-living and people usually have history of attempted removal before they land in the department of ENT. They can potentially be associated with significant complications if not taken care of immediately and most of times require skillful removal. To achieve such kind of facility in our UHC all instrument should be supplied as well as manpower ,trained medical officer and anaesthesiologist should be available.

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ORIGINAL ARTICLE

Clinicopathological study of Gastric cancer in NICRH, Bangladesh

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ABSTRACT

Background

Gastric cancer is the second most common malignancy worldwide and leading cause of non-communicable disease related mortality. Though much improvement has been achieved regarding survival of the patients of gastric cancer; still the prognosis is poor due to frequent metastasis.

Materials and methods

This was a Cross-sectional study conducted in the Department of Surgical Oncology, National Institute of Cancer Research & Hospital, Mohakhali, Dhaka from March, 2013 to April, 2014. Consecutive 80 patient was taken purposively

Results

This study revealed the mean age of the patients was 59.71 (±10.19) years. The female to male ratio in this study was 1: 2.48. . Nearly 7.6% patients had a positive family history. More than half of the respondents were smokers. 66 (82.5%) patients were presented with anemia. Most of the tumours were located in the distal(Non crdiac) part of the stomach (75%). Regarding staging 79(98.75%) patients were in the advanced stage of the disease.

Conclusions

Poor dietary habits such as smoking, dried fish and excessive use of tobacco are associated with high occurrence of gastric cancer in Bangladesh. Increasing the awareness regarding the aetiology and varied clinical presentation among general population and health providers is needed for prevention and early detection.

Keywords: *Gastric cancer, adenocarcinoma, clinicopathplogical, Bangladesh, dried fish, smoking, abdominal discomfort.*

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Introduction

Gastric cancer is the fourth commonest cancer worldwide. It is also recognized as the second commonest cause of cancer - related death in the global perspective(1) it varies among the different part of the world and different ethnic group (2). Though much improvement has been achieved regarding survival of the patients of gastric cancer; still the prognosis is poor due to frequent metastasis. (3). Helicobacter pylori infection is associated with an approximately two-fold increased risk of developing gastric cancer (4). Pylori H have been categorized as a "Group-1 human carcinogen" by the International Agency for Research on Cancer (5). The role of tobacco in the occurrence of gastric cancers cannot be undermined (6).

Materials and methods

This was a Cross-sectional study conducted in the Department of Surgical Oncology, National Institute of Cancer Research & Hospital, Mohakhali, Dhaka from March, 2013 to April, 2014. Consecutive 80 patient was taken purposively

All these patients were diagnosed on clinical, radiological and endoscopic examination. The diagnosis was confirmed pathologically after the histopathological examination of either the resected specimen or the endoscopic biopsy specimen. All the patients with a confirmed gastric carcinoma were included in the study. Restaging was performed according to AJCC staging system (7th edition) based on the available clinical and radiological findings.

Descriptive statistics were used for analysing the data using SPSS version 20 and results were presented in percentage

Results

This study included 80 patients with female to male ratio of 1:2.48. The highest patients were from 61-70 years age group. The mean age of the patients was 59.71 (±10.19) years. Among the 80 patients in this study, 7.6% patients had a positive family history. The (52.65%) patients had the habit of taking additional salt intake and salted dry fishes were taken frequently by 39(48.75%) respondents. More than half (56.25%) of the respondents were smokers and all of them are male. Only two(2.5%) of them were both alcoholic and smoker. Vague abdominal discomfort was the most common presenting symptom in 75% of patients followed by vomiting (58.75%), Weakness(36.25%), weight loss (23.75%), nausea ((42.5%), dysphagia (17.5%)

Most common site of gastric cancer was distal noncardiac 60(75%) followed by proximal cardiac 20(25%) . 38(47.5%) ulcerative type of lesion whereas 36(45%) showed ulceroproliferative lesions. The minimum patients showed linitus plastica and polypoid growth.

About 36(45%) of the tumours were poorly differentiated, 44(55%) Well to moderately differentiated .According to Laurence type Intestinal type was 45(56.25%) and Diffuse type was 35(43.75%). %). Regarding pTNM, mostly were at Stage II 34(42.5%) followed by Stage III17(21.25%), Stage IV 15(18.75%), Stage I 14(17.5%) . Only 7(8.75%) of patients had distant metastasis at the time of presentation. Liver was the most common site of metastasis found in 5(6.75%) patients followed by left supraclavicular lymph node 2(2.5%), peritoneal meatastais13 (16.25%)(Table-3) .

Figure-1: Shows the age distribution of the patients.

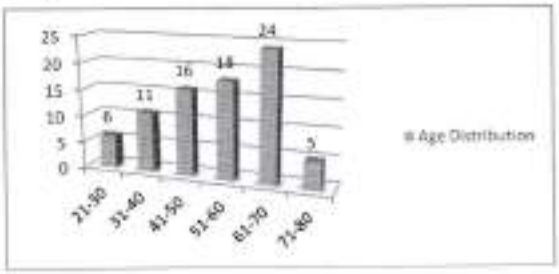

Table-1: Distribution often causes by symptoms (n=80)

Symptoms	Frequencies(%)	Percentage(%)
Weight loss	19	(23.75%)
Anorexia	34	(42.5%)
Abdominal pain	60	(75%)
Weakness.	29	(36.25%)
Vomiting	47	(58.75%)
Dyspepsia	13	(16.25%)
Dysphagia	14	(17.5%)
Melaena	9	(11.25)
Lump	8	(10%)
Painless	1	(0.8%)
Haematemesis	2	(2.5%)

Table-2: Distribution of the cases by tumor morphology(n=80)

Tumour morphology	Frequency	Percentage
Location		
Proximal	20	(25%)
Distal	60	(75%)
Staging		
Early	1	(1.25%)
Advanced	79	(98.75%)
Grading		
Well to Moderately differentiated	44	(55%)
Poorly differentiated	36	(45%)
Laurence type		
Intestinal	45	56.25%
Diffuse	35	43.75%

Discussion:

However, certain regions of southern coastal region have recorded a high incidence, especially the district of Bogra, Bhola, Pirojpur, Potuakhali, Barisal, Bagerhat, Satkhira, Jessore, Khulna etc(7). Certain dietary and tobacco related carcinogens are known to act as co-factors to bring out genetic changes (8). A high incidence of gastric cancer has also been reported in the Southern districts of Bangladesh and there is lack of clinico-pathological information about gastric cancer from Bangladesh.

Our study revealed the mean age of the patients was 59.71 (±10.19) years. The highest patients were from 61-70 years age group. The female to male ratio in this study was 1: 2.48, which are comparable with other studies (9) Presumably, this male preponderance could be attributed to the high incidence of smoking ((56.25%)) found among the males, in this study we found no women with smoking habit. About 7.6% of patients in our study had a positive family history which was similar to another study (9). However, many other studies have reported a positive family history of 17% of patients (24). Our low estimate of family history could have been because of poor reporting by patient attendees. Out of 80 patients 27(33.75%) patients beared A +ve blood group whereas 23(28.75%) patients beared B+ve blood group. An association between gastric carcinomas and the blood group A has been reported, which may be related to the interaction between the Lewis blood group antigen and H. pylori(10). The association of the blood group A with males, with diffuse-type gastric cancer is stronger than with females, or intestinal-type gastric cancer .

An overwhelming majority of patients 45(52.65%) in our study had a history of consumption of additional salt, and 39(48.75%) of patients had history of consumption of dried, fermented fish.

Consumption of dried fish has found to increase the risk of gastric cancer (11,12). The most common presenting symptoms in our study was abdominal pain 60(75%), vomiting 47(58.75%), weight loss 19(23.75%), which were similar to other studies (19). Our findings revealed that most common site of tumour was Noncardiac 60 (75%) followed by cardia 20 (25%) which are consistent with many other studies (28-29). Considering the histological type, all of them were found to be adenocarcinoma consistent with other studies (13,14,15). Majority of the tumours 44(55%) in our study were well to moderately differentiated, similar to other studies (16,17,18). Studies have shown that elder patients were more likely to have well or moderately differentiated tumours and young patients were more likely to have poorly-differentiated tumours (19). Early gastric cancer was present in only 1(1.25%) case and majority 79(98.75%) had locally advanced gastric cancers at the time of presentation in our study.

Conclusions:

Our analysis suggests that poor dietary habits such as consumption of additional salt, water with high content of arsenic, dried fish, and excessive use of tobacco and less uptake of fresh fruits are associated with high occurrence of gastric cancer in Bangladesh. Symptoms of abdominal pain, anorexia, vomiting, weight loss and in elderly population should alert the healthcare providers about the possibility of gastric cancer. Increasing the awareness regarding the aetiology and varied clinical presentation among general population and health providers is needed for prevention and early detection. High risk subset may be undertaken for screening the disease.

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ORIGINAL ARTICLE

Correlation Between Electrographic Findings and Pulmonary Hypertension in Patient with Mitral stenosis

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ABSTRACT

Rheumatic mitral valvular disease is common and pulmonary hypertension is an early complication of the disease. So we need to know ECG parameters of pulmonary hypertension in patients with mitral stenosis.To identify more accurate ECG parameters for prediction of pulmonary hypertension in patients with mitral stenosis. A cross sectional observational comparative study was conducted on 70 patients in the department of cardiology, BSMMU, Dhaka, from July 2007 to June 2009. Among them, 50 patients had mitral stenosis with pulmonary hypertension and 20 patients had only mitral stenosis without pulmonary hypertension. ECG parameters and Echocardiograph findings were identified and correlated.

Transthoracic echocardiography (TTE) was performed and ECG parameters of different criteria were tested. Some parameters were found more valuable in terms of predictive value, sensitivity and specificity. RV1+SV6-SV1?0mm, R/Sin V1? 1, RV1+SV5 ?10mm, A+R-PL? 7mm(A= Greatest R or R' in V1 or V2, R= Greatest S in lead1 or V6,PL= Least S in V1 or least R in lead1 or V6), R/S in lead I? 1, T inversion in V1 have 70% sensitivity and 90% positive predictive value in predicting RVH (right ventricular hypertrophy) in mitral stenosis with pulmonary hypertension. Among these, RV1+SV6-SV1>0mm had the highest sensitivity of 76%, specificity of 85%, positive predictive value of 93% and negative predictive value of 59%. R/S in V6<1, QRS axis >90?, presence of qR in V1, had 100% specificity and predict pulmonary hypertension with 100% certainty.

The previously described ECG patterns suggestive of RVH had reduced sensitivity, specificity and predictive values in patients with pulmonary hypertension. The ECG patterns focusing on the RV1 tSV6 -SV1> 0 mm, RS ratio in V1 > 1, RV1 +SV5 > 10 mm, A+R-PL > 7 mm, R/S <1 in lead I, T inversion in V1 has optimal sensitivity, specificity and positive predictive value in diagnosing pulmonary hypertension among patients with mitral stenosis.

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Introduction

Conventional electrocardiogram criteria or parameters of right ventricular hypertrophy are not applicable in all patients with pulmonary hypertension. Different diseases may have different sets of ECG criteria for RVH (Right Ventricular Hypertrophy). Al-Naamani shows that conventional ECG findings of RVH are not applicable in patients having COPD with pulmonary hypertension(1). In our country rheumatic mitral valvular disease is common and pulmonary hypertension is an early complication of the disease. So we need to know ECG parameters of pulmonary hypertension in patients with mitral stenosis.

In clinical practice, 12-lead electrocardiogram is easily accessible. The ECG interpretation skills can be easily acquired and are usually incorporated in basic training of the physicians. On the other hand, obtaining good quality two dimensional echocardiograms can be problematic in remote areas and often involves significant cost. The competency of performing and interpreting echocardiograms are also difficult to attain. If validated as good clinical tools with acceptable predictive values for significant pulmonary hypertension, ECG may be useful to guide the clinicians in selecting appropriate patients for further testing. In our country rheumatic mitral stenosis is common and ECG could be used as a good tool for predicting pulmonary hypertension.(2)

Butler et al developed new ECG criteria for RVH that attained maximal specificity in control subjects and sensitivity in patients with proved RVH due to mitral stenosis. It incorporated the principle derived from the spatial changes in the QRS complex observed on the vectorcardiogram and included the criteria that supplement the diagnostic capability of the criteria derived from vectorcardiogram(3,4,5).

In this study we tried to find out ECG parameters that have higher sensitivity and specificity in diagnosing right ventricular hypertrophy in patients having pulmonary hypertension with mitral stenosis that has got implication in treatment and prognosis of the disease.

Methodology:

This cross sectional observational study was carried out in the department of cardiology, University Cardiac Center, BSMMU, Dhaka, during the period of July 2007 to June 2009. A total of 70 patients who were admitted into BSMMU from July 2007 to June2009 were diagnosed as having mitral stenosis which was included in this study. Among them, 50 patients were suffering from mitral stenosis with pulmonary hypertension (case) and 20 patients had only mitral stenosis without pulmonary hypertension (control). Among the study population there was no significant age and sex difference between the groups. Average age of case was 36 years and control was 34 years. The sex distribution was also identical between groups.

Patient with history of myocardial infarction, patients with pacemaker, poor quality ECG, patients with left bundle brunch block and those without measurable PASP by TTE (Transthoracic Echocardiography), those with pulmonary stenosis, with history of left ventricular dysfunction, COPD and other valvular heart disease, congenital heart disease were excluded from this study.

The study population was divided into two groups: one group having pulmonary

hypertension (PASP > 30) and the other without pulmonary hypertension (PASP<30). To see the ECG parameters of patients with severe pulmonary hypertension, patients having PASP>60 were further gathered into one group and PASP<60 into another group.

Transthoracic echocardiography and ECG were performed within twenty hour of admission. Transthoracicechocardiography was performed by trained personnel with SiemensAccusons CV 70 in the university cardiac centre BSMMU. Transducer 2.5 and 3.5 MHz were used for echocardiography. Doppler measurement of tricuspid regurgitation gradient was performed in at least two different views, with the most commonly used views being the 4-chambers and the parasternal short axis. At least three measurements of tricuspid regurgitation gradients were performed if the patient was in sinus rhythm and measurements were obtained if the patient was in atrial fibrillation. The mean of these measurements was used for calculation. The right atrial pressure was estimated by the dimension and respiratory variation of the inferior vena cava at its junction with the right atrium.

The 12-lead ECG was done by trained technicians and reviewed by two independent cardiologists. Name of ECG machine was FUKUADA cardiosuny. The ECG calibration was 25mm/s and 10mm/mV. We studied the following ECG parameters of RVH as proposed by two main cardiology and ECG text books and different criteria of RVH {Criteria proposed by Butler PM et al, Bonner's criteria, Moratara's criteria, Hiroki's criteria IBM,Marquette,Sokolow and Lyon }: A+R-PL(Here A=maximum anterior forces were defined as the greatest R or R' in lead V1 or V2, R= maximum rightward forces were defined as the greatest S in lead 1 or V6,PL= minimum posterolateral forces were defined as the least S in V1 or least R in lead1 or V6):R in lead 1 2mm; RV1 7mm; SV1 2mm; R/S in V1 1; RV5 5mm; R/S in V6 1;RV1>5,RV1+SV5 10mm; QRS axis>900;presence of qR in V1,S1,S11,S111;R in aVR 11.5mm,presence of RBBB; SV6 7mm;P in lead 11 2.5mm;RV1+SV6-SV1>0mm; R+ S in V6<6mm;T inversion in V1.One or combination of ECG parameters represented RVH (right ventricular hypertrophy). Statistical Analysis was conducted using SPSS12.0 for windows software. Categorical data were expressed in frequencies and corresponding percentages. Parametric data were expressed in mean±SD and evaluated by independent sample "t" test and categorical data were evaluated by Chi-square test as needed. Pearson correlation was observed between values obtained by A+R-PL and PASP. Level of significance for all analytical tests was set at 0.05 and 'p' value 0.05 is considered significant.

Results:

In this study,ECG parameters of different criteria;vectorcardiogram derived criteria (proposed by Butler PM et al), Bonner's criteria, Moratara'scriteria, criteria by Hiroki T at el (1988) IBM, Marquette, Sokolow and Lyon were tested and found some parameters to be more valuable in terms of predictive value, sensitivity and specificity.RV1+SV6-SV1>0mm, R/S in V1 1, RV1+SV5 10mm, A+R-PL 7mm,R/S in lead 1 1,T inversion in V1 have optimum sensitivity and negative predictive value in predicting right ventricular hypertrophy in mitral stenosis with pulmonary hypertension. The above mentioned ECG parameters have around

70% sensitivity and 90% positive predictive value. Among these criteria, RV1+SV6-SV1>0mm has the highest sensitivity of 76% ,specificity of 85% ,positive predictive value of 93% and negative predictive value of 59%.R/S in V6<1,QRS axis >900, presence of qR in V1, S1S11S111have 100% specificity and positive predictive value. So, they predict pulmonary hypertension with 100% certainty. Among the tested ECG parameters RV1+SV5 10mm has the highest prevalence of 70%.

Table2. Prevalence of ECG patters suggestive of RVH:

ECG patterns	Group		p-val
	Case (n = 50)	Control (n = 20)	
RV1 ≥ 7 mm	17(34.0)	2(10.0)	0.04
RV < 5 mm	2(4.0)	0(0.0)	0.50
R/S V1≥ 1	29(58.0)	2(10.0)	< 0.0
R/S V6 ≤ 1	10(20.0)	0(0.0)	0.02
RV1+SV5 ≥ 10 mm	39(78.0)	4(20.0)	< 0.0
QRS axis > 90	23(46.0)	0(0.0)	< 0.0
SV1 ≤ 2 mm	21(42.0)	3(10.0)	0.0(
SV6 ≥ 7 mm	12(24.0)	1(5.0)	0.12
P> 2.5 in lead II	13(26.0)	5(27.8)	0.01
A+R-PL ≥ 7 mm	33(66.0)	4(20.0)	< 0.0

In detecting severe pulmonary hypertension, the ECG parameter like RV1+SV6-SV1>0mm,R/S in V1 1,R/S in lead 1 1, RV1+SV5 10mm, A+R-PL 7mm,T inversion in V1,Pin lead 11>2.5mmdemonstrated sensitivity and specificity of 76% &85%,72%&77%,78%&59%,75%&64%, 71%&71% respectively.R/S in lead 1 1 had highest sensitivity of 78% and presence of qR in V1 had highest specificity of 100% in detecting severe pulmonary hypertension in mitral stenosis.On the other hand, some parameters like presence of RV1>SV1,S1S11S111 and qR in V1 had highest specificity and positive predictive values but they were relatively less sensitive.

Table3. Different ECG patterns in predicting RVH in patients having mitral stenosis with pulmonary hypertension:

ECG patterns	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
RV1 > 7 mm	34.0	90.0	89.5	35.3
RV5 ≥ 5 mm	4.0	100.0	100.0	29.4
R/S V1≥ 1	63.0	90.0	93.5	51.4
R/S V6 ≤ 1	22.2	100.0	100.0	31.8
RV1 +SV5 ≥ 10 mm	70.0	80.0	89.7	51.6
QRS axis ≥ 90	46.0	100.0	100.0	42.6
SV1 ≤ 2 mm	48.7	90.0	91.3	40.9
SV6 ≥ 7 mm	24.5	95.0	92.3	33.9
P> 2.5 in lead II	56.5	72.2	72.2	54.2
A+R-PL ≥ 7 mm	66.0	80.0	89.2	48.5
RV1 >SV1 (Present)	61.3	90.0	93.8	48.6
SV5 or V6 > 5 mm	63.3	75.0	86.1	45.5
RV1 >5	36.0	75.0	78.3	31.9
S1S2S3 (Present)	26.5	100.0	100.0	37.7
RV1+SV6 - SV1 > 0 mm	76.0	85.0	92.7	58.6
qRV1 (Present)	11.0	100.0	100.0	30.8
SV1 > 5 mm	63.8	85.0	90.9	50.0
RIIIII (Present)	26.0	90.0	86.7	32.7
R > S in lead I	52.0	80.0	86.7	40.0
SV6 >1	51.0	75.0	83.3	38.5
T inversion in V1	72.0	65.0	83.7	48.1
SI(Q)	48.0	60.0	75.0	31.6
R/S in lead 1 <1	73.8	70.6	86.1	52.2

We have found linear correlation between values obtained by A+R-PL formula and PASP.

From this study a linear correlation between values obtained by A+R-PL formula (a measure for prediction of RVH)and PASP (a measure for prediction of pulmonary hypertension) have found.

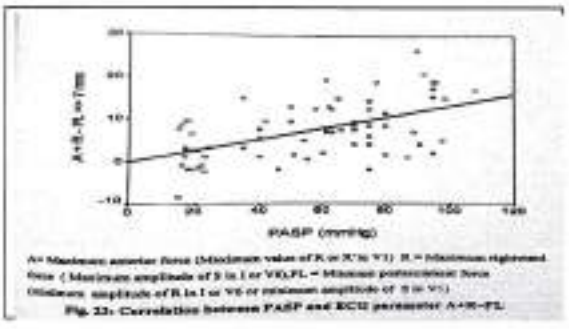

Fig.1: Correlation between PASP and ECG parameter A+R-FL

Discussion:

Mitral stenosis (MS) was chosen as the clinical problem because of its causal relationship with right ventricular pressure overload. Significant RVH due to pressure overload was further assured by requiring a pulmonary arterial systolic pressure at rest of 30 mm of Hg. Butler et al 1986 had developed vectogram derived criteria A+R-PL 7mm which showed 96% specificity and 34% sensitivity(3). But according to our study sensitivity was 75%, specificity was 71% and positive predictive value was 73%. It could be due inclusion of a larger population in our study. In a study they had suggested the correlation between values obtained by magnitude of the right ventricular hypertrophy formula (A+R-PL) and pulmonary artery systolic pressure (PASP) to see the quantitative relation between them.(3) In this study we found that values obtained by A+R-PL formula and PASP showed significant linear relationship, suggesting that values of A+R-PL increases with increase in PASP in patient with pulmonary hypertension.

Based on the Bonner's criteria, the present study demonstrated that about one-third of cases (32%) had possible right ventricular hypertrophy and another one-third (32%) had probable hypertrophy. But there was no definite right ventricular hypertrophy. So, Bonner's criterion is not suitable for detecting pulmonary hypertension in patients with mitral stenosis(6,7,8).

Using the criteria proposed by Hiroki's we found that about 43% cases had definite RVH, 17% had probable RVH, 34% had possible RVH and 5.7% did not have any RVH(4). This criterion can be used for detecting pulmonary hypertension among patients with mitral stenosis.

Based on Moratara's criteria, over 34% had definite RVH, 27% had probable RVH,31% had possible RVH and 7% did not have any RVH.

Based on the results of this study, R/S in lead1 1 had 74% sensitivity, 71% specificity, 87% positive predictive value and so far, it is a new ECG parameter for diagnosing right ventricular hypertrophy. The reasons of such ECG changes were not conclusive. Possible mechanisms are ventricular remodeling and changes in thoracic geometry (9,10).

Conclusion:

The previously described ECG patterns suggestive of RVH had reduced sensitivity, specificity and predictive values in patients with pulmonary hypertension. The ECG patterns focusing on the RV1+SV6-SV1>0mm, R/S in V1 1, RV1+SV5 10mm, A+R-PL 7mm, R/S in lead1 1, T inversion in V1 have optimal sensitivity, specificity and positive predictive value in diagnosing pulmonary hypertension among patients with mitral stenosis. In particular, each of the following ECG patterns has superior positive predictive value (even reached up to 100%) for significant pulmonary hypertension in patients having RV5 5mm, R/Sin V6 1, presence of qR in V1 and QRS axis 900.

This study suggested that there was a relation between values obtained by ECG parameters A+R-PL formula and pulmonary artery systolic pressure (PASP). The correlation between PASP and A+R-PL shows that the two variables bear a significant linear relationship suggesting that A+R-PL (a measure for prediction of RVH) increases with the increase of PASP (a measure for prediction of pulmonary hypertension).

SoA+R-PL value can be used to find out PASP. ($r = 0.553$, $p < 0.001$)

Another new observation have found from this study is that R/S in lead 1 1has 74% sensitivity, 71% specificity, 86% positive predictive value in diagnosing pulmonary hypertension. To validate these two new observations further studies can be done in larger population and in multicentre.In our country we can use the above mentioned ECG parameters to detect pulmonary hypertension among patients with mitral stenosis in addition to clinical findings because echocardiography is not available in all areas.

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ORIGINAL ARTICLE

Climate Related Target Diseases in the Coastal Area of Southern Bangladesh

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ABSTRACT

Background: *Climate change may impact on health and health related event . It may alter the proliferation and distribution of pathogen, vectors and allergen.* ***Objective:*** *To estimate the magnitude of climate related diseases in coastal areas & also to determine their relationship with environmental factors.* ***Methods:*** *This prospective cross sectional study was conducted in southern part of Bangladesh from April 2013 to March 2014. Shamnagar, satkhira one Upazilla in coastal area for this study was taken. Patients of all ages attending the Upazilla health Complex (UHC) with target diseases were enrolled. Nine target diseases were water borne (diarrhea, typhoid, viral hepatitis); vector borne (Malaria kalazar, dengue) and systemic diseases (asthma, hypertension, arsenicosis).* ***Results:*** *Target diseases were observed in 1042 patients in Shamnagar Diseases were lowest (20%) in monsoon and highest in winter (42%). Large bulk of patients (31%-32%) in both areas was young adult (16-30 years). Diarrhoea was highest (49-53%) in frequency in coastal areas. A few case of dengue (1%) in Shamnagar. Hypertension 19% in Shamnagar and asthma 11% was more frequent. Diarrhoea, was significantly higher (p<0,001) in patients with pond water consumption.* ***Conclusion:*** *Diarrhea, dengue and hypertension were more frequent in coastal area, conversely kala-azar asthma was less common . Water consumption, environment and economy had significant influences over them.*

Keywords : *Climate related disease, Water borne, Vector borne, Coastal area.*

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Introduction :

WHO estimates that 25% of global disease burden including more than one third of children is related to environmental factors (1). WHO had shown that climate change have caused a loss of 1,60,000 lives annually (2). More than half of world population lives within 60 km of the sea and most vulnerable regions are Nile delta in Egypt Ganga-Brahmaputra delta in Bangladesh and small islands like Maldives (3,4) Climate change directly cause effect through increase in frequency , intensity and duration of extreme weather

events, Climate change can influence the seasonal pattern of vector, water and food borne diseases-malaria, kala-azar, dengue and cholera (5,6). Outbreaks of diarrhoeal diseases are intimately associated with heavy rainfall and increased temperature. The primary solutions to the resurgence of climate related diseases include improved surveillance for climatic health hazards and education of public for taking appropriate preparation (7,8.9).

Methodology:

A prospective cross sectional study for a period of one year extending from April 2013 to March 2014 was done to estimate the magnitude of the target diseases both in children and adult. Total Population of Satkhira distrct are scattered in 7 Upazila 1 in the coastal area. Due to time and resource constrain one upazilla-Shamnagar which is on the seacoast , adjacent to Sundarban and 60-70 Kilometers away from Satkhira Sadar Hospital was taken as sample . Upazilla Health Complex(UCH) is the only health care centre and catches most of the patients in the Upazilla. All the patients attending the out-patient department (OPD) of the said UHC were taken into account. Two doctors (Field investigator) from UHC were recruited for data recording which would be send to the research centre at the end of each month.. Data for patients was limited to 9 target diseases on age, sex, residence, economy, environment and outcome. Monthly family income of 125-250 dollars was taken as middle class and figure above and below it was taken as rich and poor. All data in the proforma were re-checked by co-investigators and entered into SPSS-14 for analysis.

Result:

Total population of Shamnagar Upazilla in coastal area is 1,56,908 . Nine target diseases were observed in 1042 patients in Shamnagar. Average temperature (OC) of Khulna division in 2013-14 varied from winter (15) to summar (35) and monsoon (27) . Similarly average rainfall (mm/month) increased from Winter (10) to Summar (73) and monsoon (327) (15).

Table-1: Disease pattern of study population

Disease	Patient no.in Coastal area
Diarrhea	515
Typhoid	194
Hepatitis	12
Malaria	0
Kala-azar	0
Dengue	15
Asthma	111
Hypertension	196
Aresnicosis	0

Table-2 : Association of Systemic disease with economic status

Disease/Economy	Coastal Area
	Number (%)
Asthma	
Rich	11 (9.9)
Middle	53 (47.7)
Poor	47 (42.3)
Hypertension	
Rich	23. (11.8)
Middle	128 (65.6)
Poor	44 (22.6)
Arsenicosis	
Rich	0 (00)
Middle	0 (00)
Poor	0 (00)

Discussion:

Population of South East Asia regions is disproportionately more vulnerable to the impacts of climate change(10,11,12). We observed that hospital attendance in Shamnagar young adult was the most affected people (31-32%) in the costal areas. High population density, inadequate nutrition and sanitary condition has made Bangladesh very vulnerable to climate

change and children would suffer the most (12,13).In category based diagnosis, there was increased number of vector borne diseases and less number of systemic diseases in the coastal areas. Half of the target diseases were water borne diseases particularly diarrhea (49-53%), Climate change is expected to increase the diarrheal diseases in low income countries by approximately 2-5% by 2020.4 Hypertension and asthma has reportedly increased in recent years which corroborates with present findings (14,15,16).We found that diarrhea and typhoid was significantly high ($p<0.001$) in coastal area. Outbreaks in coastal region of Bangladesh has been linked to increased sea surface temperature and abundance of plankton which is believed to be the reservoir of Cholera bacilli (17,18,19) An increase of rota virus diarrhea in Dhaka was also observed by 40% for each 10^0C increase in temperature above 29^0C 20.Hypertension and asthma was lower in coastal area respectively in relation to economy was significant. A number of arsenicosis were also observed in Shamnagar, increase salinity in drinking water increase the risk for skin diseases and renal disease. Increase frequency of hypertension in coastal area also supports the view by other scientist(4). Large number of population in Bangladesh is suffering from arsenicosis and situation will aggravate due to climate change (20).

Conclusion:

This small scale study had explored significant difference diarrhea ,dengue and hypertension were more frequent in coastal area ,kala-azar and asthma were less prevalent in coastal area. This difference was related to the location ,water consumption and economy.

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ORIGINAL ARTICLE

SPOT URINE CALCIUM-CREATININE RATIO IN EARLY PREGNANCY: A PREDICTOR OF PREECLAMPSIA

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ABSTRACT

Hypertensive disorders of pregnancy are common major complications of pregnancy and are responsible for significant perinatal and maternal morbidity and mortality. Many markers have been proposed to identify the pregnant woman at risk to develop preeclampsia, though the gold standard is yet to be achieved. The main purpose of the present study was to know if the detection of urinary calcium creatinine ratio in early stage of pregnancy can be a predictor of preeclampsia. One hundred women with 20 to 30 weeks of gestation were studied. Urinary calcium and creatinine were estimated by timed end point method and Alkaline picrate method respectively at the second visit of antenatal check up. A range of 300 mg/24 hours and 50-250 mg/dl/24 hours were considered as normal level for early pregnant women. Out of hundred women studied 07 (group 1) developed preeclampsia and 93 (group 2) remained normotensive throughout the pregnancy. The concentration of urinary calcium was significantly low in preeclamptic subjects than in the normotensive ones and the values showed significant difference between the two groups ($p<0.001$). It was concluded that the detection of spot urinary calcium creatinine ratio in early stage of pregnancy could be a good predictor of preeclampsia. Moreover these are simple and feasible procedure which can be performed in any standard laboratory.

Keywords : *Microalbuminuria, preeclampsia ,urinary calcium*

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Introduction :

Preeclampsia is one of the common and serious complications of pregnancy that affect both mother and the child. It is relatively more common in developing countries and probably accounts for more than five thousand maternal death worldwide each year(1). In Bangladesh incidence of preeclampsia is much higher. Among the causes of maternal death, eclampsia ranks first which is 47.85%(2). The signs and symptoms of preeclampsia become apparent after 20 weeks of gestation and most frequently in third

trimester of pregnancy. However the underlying cause of the pathophysiologic mechanism that are thought to be responsible for the disease process appears to occur much earlier in pregnancy, between 8 to 18 weeks of gestation. For this reason, it seems logical to search for earlier indicators of this disorder(3).

Calcium homeostasis is an important aspect of maternal & fetal physiology during gestation, since fetal bone mineralization requires adaptive adjustment in maternal calcium regulation(4). When calcium intake is low, the body usage a series of mechanism to maintain the ionic serum calcium level. An inverse relationship between calcium intake and hypertensive disorders of pregnancy was first described in 1980(5). Low calcium intake may cause high BP by stimulating either parathyroid hormone or renin release, thereby increasing intra cellular calcium in vascular smooth muscle, leading to vasoconstriction. So calcium supplementation reduces parathyroid release and intra cellular calcium and thereby reduces vascular smooth muscle contractility(6). Serum calcium level was significantly less in preeclamptic and eclamptic patients than that of nongravid and normal pregnant women(7). Established preeclampsia is associated with hypocalciuria(8). Although the etiology of this change in calcium metabolism is unknown, it has been speculated that hypocalciuria may result from decreased dietary intake, decreased intestinal absorption, increased calcium uptake by the fetas and placenta or intrinsic renal tubular dysfunction(9). The urinary calcium excretion increase during normal pregnancy is attributed to either increased glomerular filtration rate and decreased tubular reabsorption or to dissociation between sodium and calcium tubular handling in the ascending loop of Henle. Contrarary to normotensive women, preeclamptic women have been shown to excrete less calcium. Many studies have suggested that preeclamptic women have a low urinary calcium to creatinine ratio in the second trimester of pregnancy(10).The purpose of the study was to determine whether the presence of low urinary calcium level thus a decrease calcium creatinine ratio in the pregnant women who were free of symptoms could predict the subsequent development of preeclampsia.

Materials and Methods:

This is a prospective study carried out from July 2003 to June 2005 in the department of Biochemistry BSMMU Dhaka and in the OPD of department of Gynaecology and Obstetrics unit, Maternal and Child Health Training Institute, Azimpur, Dhaka. One hundred gravid, normotensive women of 16-22 years of age within 20-30 weeks of gestation were selected as study subjects. Among them, 58 were primigravida and 42 women were multigravida.All the subjects were normotensive (ie systolic BP < 130 mm of Hg and diastolic BP < 80 mm of Hg). Those who had hypertension, diabetes, renal disease, twin pregnancy, anaemia, proteinuria and family history of hypertension were excluded from the study. Socio-economically, the subjects were mainly from the middle and lower classes. Each women were getting iron and folic acid and maintained her usual diet. Informed consent was obtained from the subjects, for including them in the study. On the day after their first visit at 20 to 30 weeks of gestation, a fasting morning sample of urine was collected in a pretreated metal free test tube and then 10 ml urine was separated and mixed with 1-2 ml of 6 mol/L of HCL to prevent precipitation of calcium salt. 5 ml urine was kept separated for measurement of creatinine.

Results:

Total 100 pregnant women admitted to the mentioned hospitals were included in this cross-sectional study. Out of them, 07 women developed preeclampsia and 93 remained normotensive throughout the whole period of pregnancy. Among 100 women, 58 were primgravida and 42 were multigravida. The mean age of the preeclamptic women was 19.23 4.197 years and of normal pregnant women was 22.83 3.754 years respectively. There was no significant difference of age between the 2 groups ($p > 0.05$). The mean of gestational age of the preeclamptic women was 23.42 4.197 weeks and of normal pregnant women was 24.19 2.635 weeks. At the time of entry there was no significant difference of gestational age between the 2 groups ($p > 0.05$). Though 5 women developed preeclampsia from 58 primigravid women and 2 women developed preeclampsia out of 42 multigravid, but statistically there was no significance difference between 2 groups ($p > 0.05$).The mean of urinary creatinine of the preeclampsia and normal pregnant women were 88.24 41.309 mg/dl (30.80-150) and 78.24 60.498 mg/dl (14.73-281.60) respectively without having significant difference between the groups ($p > 0.05$). The mean of urinary calcium of preeclamptic women was 3.76 1.597 mg/dl (1.40-6.50) and normal pregnant women was 9.705 8.164 mg/dl (2.50-43.20) respectively. The urinary calcium level was significantly lower in preeclamptic patients and there was significant difference between the groups ($p < 0.001$).The mean of urinary calcium creatinine ratio of the preeclampsia subjects and normal pregnant women were 0.179 0.1959 (0.03-0.05) and 0.190 0.199 (0.01-0.89) having significant difference between the groups ($p < 01$).

Discussion:

Preeclampsia is a pregnancy specific multisystem disorder that is characterized by the development of hypertension and proteinuria after 20 weeks of gestation. This disorder affects approximately 5-7% of pregnancies and is a significant cause of maternal and fetal morbidity and mortality(11). In the present study out of 100 women 7 developed preeclampsia (primigravida=5 and multigravida=2) and 93 remain normotensive throughout pregnancy. It is known that preeclampsia is a disease of nulliparous1. Duckitt(11) observed that women with preeclampsia are twice as likely to be nulliparous as women without preeclampsia.In the present study most of the preeclamptic women were between 20-30 years of age. It is contradictory to the findings of Niromanesh1 et al that it is common among women below 20 years and over 35 years of age. In Bangladesh Aziza(12) in her study found that the disease is common in the age group of 20-30 years, which is consistent with our study.In the present study we found that there was a significant lower level of urinary calcium level thus a decrease urine calcium creatinine ratio in women who developed preeclampsia compared to normotensive one.

Several studies have been done to assess the value of hypocalciuria as a predictor of preeclampsia(13). Sanchez-Ramous et al 1991 concluded that patients who later developed preeclampsia excreated less calcium than those who remained normotensive. A study revealed that the urinary calcium excreation in 41 patients in 3rd trimester of pregnancy. They observed a significant decrease in 24 hour calcium excreation in hypertensive and preeclamptic patients. In this study first morning fasting urine specimen was used to determine urinary calcium excreation.Another study observed patient

with preeclamsia did not have significantly less excreation of calcium than the normotensive. But in our study we found preeclamptic patient had significantly less excreation of calcium than the normotensive ($p < 0.001$). Our findings and findings of Sanchez.Ramos et al (1991) are consistent13. But the mean of urinary calcium in normal pregnant women was (9.70 8.16) which is lower than the threshold value of urinary calcium which is 12 mg/dl. The reduced calcium excreation in normal pregnant women of our population may be due to difference in height, weight and food habit, renal and hormonal factors.

Conclussion:

Hypertensive disorders of pregnancy are common major complications of pregnancy and are responsible for significant morbidity and mortality in the fetas, new born infant and the mother. A history of pregnancy complicated by preeclampsia is associated with a high occurrence of decreased urinary calcium creatinine ratio. Furthermore the factors that are responsible for hypertensive disorders of pregnancy remained unknown and treatment is still difficult. The search for an ideal predictive test or tests should therefore be a continuous exercise. Till then, estimation of urinary calcium creatinine ratio may be considered as a useful and cost effective tool in predicting the possibilities of development of preeclampsia in vulnerable subjects.

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CASE REPORT

Acute Appendicitis in a Congenitally malformed (Duplicated) Vermiform Appendix

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Summary

Appendiceal anomalies are extremely rare malformations that are found in adult population as an incidental finding during laparotomy due to another reason. Accompanying intestinal or vertebral malformations may be present when appendiceal duplications are detected. Presented here is a case ofAcute Appendicitis in a double.

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Introduction

Duplication of the vermiform appendix is rare with reported incidence of 0.004%. Less than 100 appendiceal anomalies have been reported in the literature(1). Most anomalies of the appendix have been observed in adults and most were noticed incidentally during surgery not primarily involving the appendix(2). Duplication of the vermiform appendix causing small bowel obstruction, mimicking adenocarcinoma of the colon, hypotrophic and duplicated appendix and unusual duplication of appendix and cecum have also been reported. Appendiceal duplication have with colonic duplication and genito-urinary abnormalities, or with gastroschisis can exhibit life-threatening conditions(1,3,4).

Case Report

A 16 year old boy presented with periumbilical pain and anorexia for a duration of 10 hours. Initially the pain was in the umbilical region but later on the pain shifted to the right iliac fossa. There was no vomiting and menstrual complaint. Her bowel and bladder habits were normal. On physical examination the patient was found haemodynamically stable but on local examination the right MC-Burney's point was tender with positive rebound tenderness. There was leucocytosis with relative neutrophilia. Abdominal ultrasound was normal. Clinically and with relevant investigations the condition was diagnosed as acute Appendicitis. Appendicectomy under general anaesthesia was planned. Laparotomy was performed with a Lanz incision. In the abdominal cavity 02(two) appendices were found in a single caecum (fig: 1). One appendix was found in its

normal position and another one 03 cm away from the first one in one of the tinea coli. One of the appendix was found moderately inflamed at its catarrhal stage and other was gangrenous without any evidence of perforation. Appendicectomy was performed without any difficulty.

Postoperative recovery was uneventful. Histopathological examination of excised specimen revealed acute inflammation in one appendix and gangrenous appendicitis in other one.

Discussion:

Although the range of variation in characters and position is diverse in the experiences of surgeons, the congenital anomalies of appendix are rare in clinical practice. Furthermore, duplication anomaly is so rare that less than 50 cases have been reported in English literature. Appendiceal anomalies include anomalous location of single appendix, horseshoe anomaly of the appendix, agenesis, duplication and triplication(2). There is single case report of appendicular triplication(3,4,5).

Double appendix is usually asymptomatic, the majority of them are diagnosed on diagnostic laparoscopy or on postmortem examination and some of them can be picked up preoperatively on barium enema or on exploration for appendicectomy or for other reason(2,6,7).

The classification of duplication of appendix was first made in 1962 by Cave and Wallbridge(8). It was finally modified by Bierman in 1993. The classification divides these duplications into the following types (fig: 3).

Type A: It consists of various degrees of partial duplication on a normally localized appendix with a single caecum.

Type B: It includes a single caecum with two completely separated appendices. This type has subgroups.

B 1: There are two appendices localized symmetrically on either side of the ileo-cecal valve; this resembles the normal phylogenetical arrangement in birds, so this group was called the "bird-like or avian" type.

B2 : In addition to a normally localized appendix from the caecum at the usual site and a second, separate, rudimentary appendix arising from caecum localized along the taenia line at a varying distance from the first.

B3 : The second appendix is located along the taenia of the hepatic flexure of the colon.

B4 : The location of the second appendix is along the taenia of the splenic flexure of colon....

Type C : Double caecum, each caecum bears an appendix.

Type D is a horse-shoe appendix with two openings at the common caecum3.

Fig.-2: Wallbridge-Waugh classcation of appendiceal duplication

This reporting patient had type B2 appendiceal
duplication. These two appendices were having two
separate bases. Each appendix had its own blood supply.

Duplication of the appendix must be distinguished from the solitary

diverticulum of the caecum and from appendiceal diverticulosis. This distinction can be best made histopathologically(3,4,9). When appendiceal duplications are detected in childhood, almost all patients have serious associated intestinal, genitourinary or vertebral malformations. These anomalies are mostly associated with type B1 and C duplications(10).

Conclusion:

Appendicectomy is usually done by junior surgical residents. But they should be aware of and look for the possibility of appendiceal anomalies In patient with appendiceal duplication both the appendix should be removed so as to avoid the confusion that may arise on removal of single appendix only.Besides, the second untreated appendix or missed appendix may have serious clinical and medicolegal implications.

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REVIEW ARTICLE

DNA AND IDENTIFICATION: (LEGAL, MORAL & ETHICA L ISSUES)

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ABSTRACT

We aimed to evaluate the association among race and ethnicity, Identification of criminals and helps in justice properly. Criminals were escaped from proper punishment due to lack of evidences whether DNA can identify easily by applying scientific, modern and technique and knowledge respectively. So DNA technology can play will role not only in identification but also in different moral and ethical issues.The vast majority of human's DNA will match exactly that of any other human's making distinguishing between two people rather difficult.

Key Words : *Legal ,Moral & Ethical Issues in Relation to DNA.*

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Introduction

One of the most revolutionary advances in identification of person in recent year is so the so- called DNA profiling or finger-printing . The technique was first devised by Alec Jeffreys of Leicester University, applying virtually unique sequences of bases in the DNA strands of chromosomes in comparing our blood or tissue sample with another ,the method needs highly trained forensic scientists for its application to medico-legal issues.(1) A medicolegal expert needs to have basic knowledge of the principle s of the technique and its application in a forensic context , various points considerations.(2) That may be discuss below.

BASIC OF MOLECULAR BIOLOGY OF DNA:

Each of the 100 trillion or more cells in a human being is a living structure that can survive indefinitely and in most instances, can even reproduce itself(3). A typical cell has two major parts i,e, the nucleus and the cytoplasm. The nucleus is separated from the cytoplasm by a nuclear membrane and the cytoplasm is separated from the surrounding fluids by a cell membrane .The different substances that make up the cell are collectively called

protoplasm " which is composed mainly of five basic structure ! water electrolytes ,proteins ,Lipoids and carbohydrates ,the nucleus in the control center of the cell (2). If a cell is cut in half assudeate position eventually dies without dividing .Majority of the DNA is located in the nucleus organised in the form of chromosomes 22 pair of out autosomes and a set asex chromosome ,called x and y. These chromosomes carry a complete blue print for the heritable species and individual characterstics of the individual .Except in germ cells, the chromosome occur in pairs, one originally from each parent. the basic chemical compound involved in the formation of DNA include:1) Phosphoric Acid 2) a sugar called deoxyrybose and 3)Four nitrogen bases: two purines - Adenine (A) and Guanine. Two pyrimidines : thymine (T) and cytosine (c). the phosphoric acid and deoxyryboseform the two helical stands that are the backbone of the DNA molecule and the bases lie between two stands and connect them.(3) The specific sequence in the bases determines all the genetic attributes of a person. DNA in nature takes the form of double helix. Two ribbon like - entities are entwine around each other and are held together by bonds, like rings of the ladder .Each ring of two bases is called at base pair. only specific pairings between the four bases will match up and stick together ."A" always pair with "T" and "G" with "C". This obligatory pairing ,called complementary base pairing is exploited in all DNA typing systems .However the term nucleotide denotes a base DNA typing s base having one of four chemicals; adenine(A)thymine (T),cytosine(c)or guanine (G) ; when the double helix is intact, the DNA is called double stranded ; when the two halves of the helix come apart ,the DNA is called single stranded .In nature complementary base pairing is responsible for the ability to accurately replicate the DNA molecule with its genetic information and pass it on to the next generation. (4) Using each half of the original helix as a template"a second half is created ,resulting in two molecules which are identical to the original. This process can be recreated in utro and is the basis of ploymerase chain reaction (PCR). If the sequence at a particular location of the genome is of interest, single stranded fragments can be artificially synthesized to target the location. These single -stranded fragments of known sequence are variously called as DNA probes or DNA primer depending on their intended use.

A site/location of chromosome that dictates a particular trait is called a gene. Genes are divided into two sections: the exons and the introns . Exon represents the loding segment (segment the code for a protein during transation) of the gene wheres introns as the non-coding segment which is stretched between each exon. Genes may be as short as of 100 base pairs or each as long as of 1000 base pairs. Different forms of same gene or marker at a particular locus on a chromosome are called alleles.ABO blood types are an example of different alleles of the same gene in human. Genetic identity of an individual which does not show as outward characterstics is known as geno type.(5) Pheno type implies observable traits or characters of an organisim. A particular molecular location is called a locus .The existence of multiple alleles of a marker at a single locus is called polymorphism(6).

Forensic applications of DNA:

The constant need for another type of marker was felt which could not only survive better but also process a larger number of distinguishable alleles. This

need has been fulfilled by the application of DNA Profilling and typing .

A) Immigration and paternity disputes: These were among the first legal aarenas in which the DNA typing was used .In 1984, which searching for disease marker in DNA .Alec Jeffreys discovered a unique application of RFLP technology to the science of personal identification .His method was known as DNA finger printing .Here the probe is used BKM probe (Bonded krait Minor). Disputed paternity cases are now commonly settled by resorting DNA Matching . DNA profiling of the child, another and putative father are compared(7).

B) Gender Identification: It is often useful to know it male or female components are present in a sample. The amelogenin locus shows a length variation between the sexes ,when this region is analysed, a female with two X chromosomes will show one band . A male with X and Y chromosome will show two bands (8).

C) Y-STRs. STRs are also found on the human Y-chromosome. Because the Y chromosome is specific to males, Y-STRs can be useful in extracting male specific information from a sample. DNA typing systems are invaluable in the identification of bodies and body parts from mass disasters.DNA typing is now a standard tool used in the identification of body parts recovered from airline disasters(9).

D) Violent crimes : DNA analysis of blood swabs stains obtained from the under weapon used and found in the possession of the accused of the blood sports on a accused clothes and comparing the DNA profiles with that of the victim will be instrumental in connecting the criminal with crime.(10)

6) sexual assault cases: Identification through comparison of DNA profile has made revolutionary advances especially in the area of sexual assault cases .seminal fluid in the vagina of a victim of a rape or rape associated with homicide can be matched against the blood DNA pattern of a suspected being no need to match semen against semen as all the DNA in given individual must be identical. Similarly a salivary stain left in process of kissing , leaking, etc. or even a hair transferred on to the victim during the sexual act or assault can be sufficient to extract DNA for comparison with the suspects profile .It may be sometimes labeled as women's issue.(11)

Guide line for collection, preservation and dispatch of samples for DNSA testing;
Materity/paternity/parentage testing: Here blood samples of another, disputed child and alleged father are required,

Blood: As Red cells have no nuclear DNA, sufficient amount of blood must be obtained to extract DNA from much as percent leukocytes.(12)

Saliva: Saliva is collected in a test tube dilated with an equal volume of normal saline and placed in a boiling water bath for about 10 minutes.(12)

Buccal epithelial cells: By gently rubbing a wet tooth brush across the buccal surface the brush can be tapped on to the surface of FTA paper for sample storage and preservation.(13)

Clothing: All Wet or dry clothes with wet stains should be dried in air, transferred gently into strong sterilized papers, bags, sealed and labelled.(13)

Hair/Nail Beds: In rape cases loose Pubic hair should be collected from the victim and the accused before collecting their controls.(13)

Swabs/Smears: Sterile cotton is used for absorption of vaginal, urethral fluid by

touching suitable region of vagina /urethra air dried, placed in sterile test tubes , sended and labelled properly.(14)

Seminal and vaginal fluids: Liquid semen found in the vagina or else where should be recovered with a fine pipette. placed in a small plain tube and preserve after effective cooling.(6)

Autopsy samples: Deep muscle tissues sample are must suitable as it is most resistant to decomposition. Two skeletal muscle fragments need to be selected, wt about 10gm and 2cm wide.(14)

Charred corps: Bones preferably long bone like femur or humerus be selected. In addition the bone like sternum/ribs can be also used. Teeth preferably molars remain in the tissue of election.

Conclusion :

DNA Contains the generic information that allows all modern living things to function, grow and reproduce. However it is unclear how long the 4- billion-year of life DNA has performed this functions as it has been proposed that the earliest forms of life may have used RNA as their genetic material. The development of forensic Science, and the ability to now obtain genetic matching on minute samples of blood, skin, saliva, or hair has led to a re examination of a number of cases.

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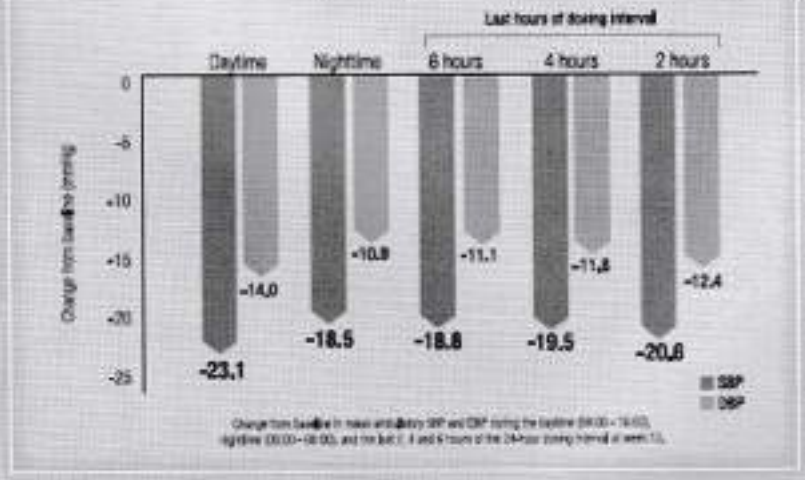

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