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INSTRUCTIONS TO THE CONTRIBUTORS

The Satkhira Medical College Journal a biannual (January & July) journal published by the editorial board on behalf of Satkhira Medical College Teachers' Association. Each issue includes editorial, original articles, review articles and case reports of exceptional merit on any discipline of medical science.

Submission of manuscripts

Papers are accepted for publication with an understanding that they are submitted solely to the Satkhira Medical College Journal. Statements and opinions expressed in the papers, communications, and letter herein are those of author(s) and not necessarily those of editor or publisher. Three hard / printed copies in A4 size paper should be sent to the editor. In addition an electronic/ digital version of the article should also be submitted.

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EDITORIAL

Health Benefits of Probiotics

Professor Dr. A. H. S. M. Kamruzzaman

The word "Probiotic" is derived from Latin, means 'for life' [1]. The use of probiotics is increasing day by day. Modern scientific researches help us to understand the health benefits of probiotics. Beneficial microorganisms, known as probiotics, are defined by the World Health Organization as ''live microorganisms, which when administered in adequate amounts, confer a health benefit upon the host'' (FAO/ WHO 2002) [2]. The most common seven core genera of microbial organisms used as probiotics are Lactobacillus, Bifidobacterium, Saccharomyces, Streptococcus, Enterococcus, Escherichia and Bacillus.

For millennia, humans have consumed microorganisms via fermented foods, which served to prevent putrefaction as well as increase sensory aspects in the food. Some of the first fermentations were likely the result of serendipitous contaminations in favorable environments resulting in soured milk products such as kefir, leben, koumiss, yogurt and sour cream—products that are still consumed worldwide [3]. Furthermore, through the continued practice of milk souring along with back slopping techniques, humans inadvertently aided in the domestication of certain microorganisms to diverse food environments over time [4].

The probiotic concept is not novel to recent years. For millennia, humans have consumed microorganisms via fermented foods such as beer, bread, wine, kefir, kumis and cheese very frequently for nutritional and therapeutic purposes.

Probiotics promote protection against metabolic diseases and maintain a healthy body weight, produce important short-chain fatty acids, train the immune system to work optimally, deter pathogens that could make us sick, maintain the intestinal lining against "leaky gut". In fact, they do so well for us that we barely even know they are there. Probiotics are now used therapeutically for the treatment of acute infectious diarrhea, antibiotic-associated diarrhea, Clostridium difficile -associated diarrhea, hepatic encephalopathy, ulcerative colitis, irritable bowel syndrome, functional gastrointestinal disorders and necrotizing enterocolitis. The effects of probiotics are so vast that researchers are even studying how they contribute to mental health. Probiotics also have some disadvantages. It may cause gas formation /dyspepsia, constipation, nausea, hiccups, rash and infections [5].

A variety of organisms have a good safety record. But therapy has not been standardized and the most effective (and safe) organism has not been identified in many instances.Yakult is the first invented and commercially available probiotic in 1935 in Japan by Minoru Shirota .Since then probiotic marketing is increasing with the advancements of the scientific and regulatory aspects of probiotic mechanisms and delivery [6].

In our country, some probiotics are marketed by pharmaceutical companies in the form of liquor (bottle), granules (Sachet) and capsule. Some probiotics are sold in the drug store and shops as dietary supplements. Probiotics are

living organisms after all and should be kept cold in the refrigerator for its efficacy. Strict quality control measures are needed from formulation to consumer's door for optimum benefits. We can buy probiotic supplements, but it is best to try and incorporate probiotic foods into our diet.

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Original Article

Correction of Genu Valgum by Hemi Epiphysiodesis using Eight Plate in Pediatric Population in a District Level Hospital

Probir Kumar Das[1], Md. Enamul Hafiz[2], Md. Selim Reza[3], Md. Mahamudul Hasan[4], Md. Hafizullah[5], Fakhrul Alam[6], GM Alamgir Kabir[7], Biswajit Kumar Bain[8]

Abstract

Introduction: Genu valgum is an angular deformity of the knee, often treated surgically by osteotomy or by growth modulation (using tension band, staples, transphyseal screws and eight-plate which require removal after correction). With this study, we attempt to evaluate the efficacy, rate of correction and complications with the use of 8-plate in the correction of genu valgum deformity in children. **Material and method:** It is a retrospective study of 24 patients with 11 bilateral and 13 unilateral (35 knees) genu valgum deformity which required surgical corrections in Satkhira Medical College Hospital, Satkhira Sadar Hospital and Private Hospitals in Satkhira district, Bangladesh. **Result:** Twenty-four patients with an average age of 10 years and 8 months, with the mean preoperative & post-implant removal (Post-IR) tibio-femoral angle of 22.020 ± 5.150 (range 140 –310) & 6.140 ± 1.920 (range 20–100) respectively, required an average time period of 1 year & 5months ± 5 months (range 10 months–28 months) for correction after which implants were removed. Of the 35 limbs, we achieved excellent results in 91.6% cases. One case (4.16%) had a partial correction of the deformity, and one case (4.16%) had reported with a superficial infection which was taken care. There were 2 cases (8.33%) of over-correction, which was gradually self-corrected during follow-up. **Conclusion:** Our results reflect the efficacy of flexible titanium eight plate which corrects angular deformity by acting as a tension band on one side of the growth plate and offers the advantage of reversible hemi epiphyseal growth modulation.

Keywords: Growth Modulation, Genu valgum, Hemi epiphysiodesis, Eight-plate, Growth plate.

Introduction

Genu Valgum is an angular deformity of the knee, found commonly in pediatric age group [1]. It is a physiologic process and usually subsides by 6 years of age spontaneously [2]. When it does not subside with age, and the deformity continues to progress with age, then it is known to be a pathological deformity. The cause may be idiopathic or congenital syndromes like arthrogryposis, vitamin D resistant rickets etc. or it may also be post-traumatic. In pathological angular deformities, due to disease progression, there is a gradual displacement of the mechanical axis which affects skeletal growth. When valgus deformities exceed 10 degrees, it becomes symptom

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atic with pain in the knee, limp, and stiff knee, which further leads to a non-functioning limb with permanent deformity along with limb length discrepancy and ultimately cause of early knee arthritis [3].

Genu valgum can be corrected surgically either by osteotomy and internal fixation or gradual correction by external fixator or by growth modulation [4]. Growth modulation means modifying/ manipulating the normal growth patterns. It facilitates correction of angular deformities by selectively reversible tethering a portion of the physis to correct limb alignment [5]. Growth modulation in genu valgum is done by hemi epiphysiodesis using implants such as tension band, staples, transphyseal screws and 8-plate but require removal after correction has been achieved [6-10].

We studied 24 cases of genu valgum subjected to correction of deformity using 8-plate. With this study, we attempt to evaluate the efficacy, rate of correction and complications with the use of 8- plate in the correction of genu valgum deformity in children.

Material and Method

In this retrospective study, we included 24 patients with 11 bilateral and 13 unilateral knees affected with genu valgum deformity. There were 11 males and 13 females. All the cases had only genu valgum deformity, and no other deformity was present. All of them were operated using 8-plate. Inclusion criteria were mainly growing physis.

Preoperatively, all limbs were evaluated for limb length discrepancy along with angular and rotational deformities. Radiographically, lower extremity scanogram/standing Knee AP roentgenogram was taken for assessment. The tibio-femoral angle was used pre-operatively as well postoperatively at every follow- up to assess the degree of deformity and degree of correction. To avoid any interobserver error, a single orthopedic surgeon recorded all measurements.

Operative Procedure

The method included of extraperiosteal plating with two non-locking screws under fluoroscopic guidance (as described by Stevens [11]). One plate per physes was used in each deformity, and the location was distal femur medial aspect in all cases.

Under general anesthesia, the tourniquet was applied and a 2-3 cm incision taken centering over the physis located under a C-arm. A 1.2 mm K-wire was passed into the physis under fluoroscopic guidance. Due care was taken to avoid any damage to the physis. The tension band plate (2-hole 4.5 mm titanium plate) now placed extra periosteally, and 1.6 mm guidewires introduced into the metaphyseal and the epiphyseal region with care to avoid damaging the periosteum. The plate placed flush to the bone and fixed with 4.5 mm fully threaded self-tapping cannulated screws over the guide wires into the metaphysis and the epiphysis after drilling with a 3.2 mm cannulated drill bit. The final placement of the plate and the screws were confirmed under the C-arm in AP and lateral views with the plate being in the center of the lateral view to avoid any iatrogenic sagittal plane deformities. The skin was sutured with non-absorbable sutures, and compression bandage applied.

Post-operative Management

All the patients were ambulated immediately after surgery, as soon as pain subsides. There was no need for immobilization or physical therapy. Patients were followed up every three months and evaluated using standing x-rays.

Close follow-up was essential to prevent over-correction (i.e., development of an opposite deformity). Thus allowing controlled correction of the deformity.

Once the desired correction of the tibio-femoral angle was achieved, hardware was removed and the all cases were the followed-up minimum for a year after plate removal.

Implant (The Eight-plate)

It is a two-hole pre-contoured dynamic construct plate, available in three lengths (12 mm, 16 mm and 20 mm) (Fig. 1), with variable lengths of non-locking self-tapping cannulated 4.5 mm fully threaded screws (16 mm, 24 mm, and 32 mm).

All the complications were recorded as per the defined criteria. A correction was considered to be completed only when the desired tibio-femoral angle was achieved after hardware removal and maintained up to the skeletal maturity.

Fig. 1. Eight-plate with three different sizes.

Result

Twenty-four patients with an average age of 10 years and 8 months (±2y and 4m) (range 5yrs 7 m–14yrs 2 m), with mean preoperative & post-implant removal tibiofemoral angle of 22.02o ± 5.15o valgus (range 14o-31o) & 6.14o ± 1.92o (range 2o- 10o) respectively, required an average time period of 1yr + 5m ± 5 m (range 10 months–28 months) after which implants were removed. The mean amount of deformity corrected was found to be 15.9o ± 5.86o (range 8o–27o), and the overall rate of correction of deformity was recorded to be 0.91o ± 0.19o per month.

Of the 35 limbs, we achieved excellent results in 91.67%. One case (4.16%) had a partial correction of the deformity, and one case (4.16%) had reported with a superficial infection which was taken care.

There were 2 cases (8.33%) of over-correction, which was gradually self-corrected during follow-up. There were no cases of implant specific complications such as a plate or screw breakage or backing out of the screws or migration of plate. No rebound deformity was observed, in any of the corrected cases.

Discussion

In genu valgum, the mechanical axis is shifted laterally. Angular deformities of the knee lead to an abnormal loading and alteration of the knee biomechanics leading to asymmetrical stress distribution on the weight-bearing surface of the knee joint. There exists a variety of techniques to address this problem [11]. It involves correction of deformity either by osteotomy or by growth modulation through various growth inhibition techniques via a variety of implants.

The concept of mechanical manipulation of bone growth was first introduced by Heuter in 1862, stating that the growth of epiphysis is inhibited when the pressure is increased along the axis of the epiphysis, and the growth is promoted when the pressure is decreased [12]. Seven years later, Volkmann reported that the unsymmetrical growth of a joint is due to variation in compressive forces [13]. Based on these findings, the concept of growth mod-

Table 1: Details of the patients with respective tibio-femoral angles.

Case number	Age	Sex	Tibio-Femoral Angle (degree)				Time taken for correction (month)	Complications
			Right		Left			
			Pre-operative	Post IR	Pre-operative	Post IR		
1	6Y 9M	M	20	5	-	-	12	None
2	12Y 3M	F	-	-	18	6	15	None
3	13Y 1M	M	-	-	16	8	11	None
4	7Y 7M	F	28	2	20	3	22	Over correction
5	12Y 10M	F	17	5	-	-	16	Superficial infection
6	10Y 4M	F	24	8	-	-	18	None
7	8Y 6M	F	21	7	18	6	14	None
8	11Y 6M	M	24	8	27	9	20	None
9	13Y 4M	F	-	-	16	7	14	None
10	12Y 5M	F	25	6	21	5	23	None
11	10Y 9M	M	-	-	15	7	10	None
12	12Y 9M	F	18	9	-	-	12	None
13	10Y 5M	M	30	8	28	6	23	None
14	9Y 4M	F	20	4	24	5	19	None
15	13Y 11M	M	15	7	-	-	12	None
16	12Y 4M	F	16	6	14	4	12	None
17	7Y 10M	M	-	-	22	2	18	Over correction
18	11Y 10M	M	27	8	25	6	21	None
19	5Y 7M	F	-	-	21	5	11	None
20	9Y 10M	F	28	4	29	5	28	None
21	14Y 2M	F	19	10	17	9	12	Partial correction
22	11Y 3M	M	-	-	20	8	13	None
23	8Y 10M	M	31	6	29	5	20	None
24	13Y 7M	M	18	6	-	-	15	None
Average	**10Y 8M**	**11:13**	**22.41**	**6.41**	**21.66**	**5.88**	**17.28 ± 5.02**	**4 cases had no complications**

ulation was established. Eccentric loading of weight over the physis, exerts pressure on the mechano-transducer chondrocytes which inhibit the growth of the physis. This progresses the deformity further increasing the gait disturbance, pain, and functional disability. It mainly suggests early-stage intervention so that negative feedback correction can be harnessed.

Dr. Walter Blount introduced his surgical staple for gradual correction of deformity, which gained much recognition in the late 1940s [14, 15]. Staples function by adding fulcrum within the physis, which produces compression inhibiting the growth. However, for a longer duration, it may lead to permanent damage to physis. Although popular since its introduction, its use is decreased owing to the fear of premature iatrogenic permanent physeal

arrest as well as unpredictable outcomes [16, 17]. Other complications like occasional breakage or migration of staples were also noted, leading to revision or prematurely abandoning this treatment [18, 19].

However, there was a concern whether epiphysiodesis was reversible as the screw traverse through physis [20]. In 2007, Stevens introduced a technique of temporary hemi epiphysiodesis, using a different construct then staples, but based on Blount principles [21]. It comprised of a non-locking extraper- iosteal tension plates with two screws for angular correction. It is technically simple and highly efficient, allowing gradual correction with minimal complications and removable [9-11]. The eight-plate acts as a focal hinge at the perimeter of the physis with a longer lever arm, so as the physis grows, the screws toggle in the plate and pivot in the bone bringing about gradual correction and does not produce compression at the physis, thus preserving the growth potential [21, 22].

Osteotomies have traditionally been considered to be the gold standard for correction of angular deformities, but it had its complications and limitations [24, 25]. Revision osteotomies are required if growth continues resulting in recurrent deformities. Gradual, controlled correction of deformity can also be achieved using external fixator. Others have opted for the less invasive and cost-effective method of Hemi epiphysiodesis to restore alignment with fewest complications. The latest technique involves guided growth with an eight-plate with distinct advantages. The only setback is permanent damage to physis.

Our study of guided growth with hemi epiphysiodesis using 8- plate included 35 affected knees, out of which 11 were bilateral. There were 11 males with an average age of 10 years 8 months 2 years 4 months which was similar to Ballal et al.,[4] Boero et al. [26] and Aslani et al. [27]. There was a female predominance in our study with a male to female ratio of 11:13, which is similar to Kulkarni et al., [1] but other studies had male predominance. The gender determination in growth modulation is necessary because physes fuse earlier in females than in males. Thus, age along with gender play a significant role in the management of deformity.

All the patients in our study were with idiopathic genu valgum, as that with Volpon et al. [28] and Ballal et al. [4] whereas other studies had pathological cases like DDH, Arthrogryposis, Vitamin D resistant rickets, post-traumatic valgus and chronic osteomyelitis. In idiopathic and post-traumatic genu valgum the rate of correction is usually faster as compared to pathological physis. The pre-operative deformity was recorded to be the tibiofe-moral angle of 22.02o ± 5.15o, which was similar to Kulkarni et al., [1] who also had a case with the highest valgus among others with 40 degrees tibiofemoral angles pre-operatively. We recorded post-operative correction with tibiofemoral angle after implant removal, once the desired correction was achieved and all patients have monitored atleast for a year to check for any rebound deformity. The mean post-implant removal tibiofemoral angle was observed to be 6.14 degrees, which is acceptable apart from one case which was partially corrected and two cases overcorrected. The tibiofemoral angle after correction was found to be similar to all other studies. The overall average deformity corrected was noted to be 15.9 degrees. The rate of correction of deformity was found to be similar to Boreo et al. [26] and Ballal et al. [4] The average rate of correction of deformity by growth modulation depends upon the age of the patient as well as diagnosis. Younger the age faster would be the

rate of correction, and idiopathic/traumatic physis are corrected at a faster rate than other pathological physis. The average duration required for correction of deformity was recorded to be 1 year 5 months, which was similar to other studies.. This variation may also be due to the technique used or implantation as he used Blount's staples for correction of the deformity.

All the cases in our study were managed by growth modulation by hemi epiphysiodesis using eight-plate with two cannulated screws, and we got excellent results with 91.67% success. We did not face any implant-related complications like the loosening of screw or plate or migration as reported by Ballal et al. [4] as well as Kulkarni et al. [1]. We had one case (4.16%) of under correction, which was due to age and gender-related issues, as the patient is female reported late with deformity. We had two cases (8.33%) of over- correction, which got gradually corrected over the follow-up period, as these cases were too young. We encountered with one case of superficial infection which was taken care by antibiotics. No rebound phenomenon was observed in any of our cases. Similar studies with reported excellent results using eight plates for hemi epiphysiodesis. Other studies like Volpon J B [28] got 82% success using Blount's staples, and Aslani et al. [27] got 84.3% success using two holes 3.5 mm reconstruction plate with 4 mm solid cancellous screws, which was lesser than compared to all eight-plate studies. Thus, eight plate has minimum complications as compared to staples/reconstruction plates.

Conclusion

Our results reflect the efficacy of flexible titanium eight-plate which corrects angular deformity by acting as a tension band on one side of the growth plate and offers the advantage of reversible Hemi epiphyseal growth modulation. Guided growth modulation is best available option for the treatment of angular deformities in the skeletally immature patient. For the correction of Genu valgum, our recommendation is for the eight-plate due to its versatility, simplicity to use and cost-effectiveness. Although there is a minor risk of rebound growth after hemi epiphysiodesis in younger patients, it continues to be a success at an early stage of deformity and is promising.

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Original Article

Study on Different Types of Unnatural Deaths in the District of Satkhira, Bangladesh

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Abstract

Introduction: Unnatural deaths are the objects of public health issues. This study was designed to explore and aware the statistics of all types of unnatural deaths that occurred in Satkhira district of Bangladesh in 2020. **Materials and methods:** The data presented here were accumulated from the forensic examination of the corresponding dead bodies, which were submitted by police from the different police stations in the Department of Forensic Medicine & Toxicology (DFMT) at Satkhira Medical College, Satkhira, Bangladesh for postmortem examination. This study confirms and explores the number of unnatural deaths based on the observation, which were analogous with corresponding signs of studied unnatural events. **Results:** According to the data, suicidal hanging was the most prevalent cause of unnatural death in last year. **Conclusion:** This study suggests taking preventive measures that may reduce unnatural deaths.

Keywords: Unnatural deaths

Introduction

An unnatural death is usually being defined as death due to an unplanned episode that sometimes has inconvenient or unwanted consequences [1]. Unnatural deaths such as suicidal hanging, poisoning (OPC, alcohol, Benzodiazepine, Methyl amphetamine), road traffic accident (RTA), homicidal death, electrocution, drowning, accidental burning, fall from height and so on [2]. Unnatural deaths are the consequences of numerous events, including poverty,familial disharmony, anxiety, severe depression, zealously, carelessness, unawareness, ignorance, or a combination of causes and happen under the unforeseen and unintentional incident [3]. But, any unnatural death can be measured as homicide or suicide if someone is the unintended cause. Therefore, unnatural deaths should be classified and separated from natural death (the result of disease).

Distinguishing how someone died (by natural causes, accident, suicide, homicide, or an undetermined cause), referred to as the manner of death (MOD), is an important public health issue that requires an expert forensic pathologist who is the responsible person to perform autopsy/postmortem examination to determine the actual cause of death [4].

According to administrative and judiciary guidelines of Bangladesh, all unnatural deaths have to be reported to the police and should

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be subjected by the police for forensic investigation. The forensic aspect of medical service in this country includes clinical forensic medicine and forensic pathology [5]. The service is being provided by the government doctor of the state through the ministry of health. In most countries, the decision on the MOD is reserved by a legal bureaucrat, not by a doctor [6]. But in our country, forensic pathologists are responsible person to determine the MOD and deliver the medico-legal report to the legal authority who will take the necessary step according to jurisdiction.

Satkhira is one of the major districts in Bangladesh. This is an area of 38,017 square kilometers, and around 19,69,563 people live here. Satkhira District comprises of 7 upazillas, including Satkhira sadar, Kalaroa, Tala, Debhata, Ashasuni, Kaligang and Shyamnagar. But, there is a lack of continuous exploration about the unnatural deaths in this district. Therefore, this study was designed to explore and aware the data of all types of unnatural deaths that occurred in Satkhira district in 2020 (1 January to 30 December).

Materials and methods

Study subject: The data were gathered from the Department of Forensic Medicine & Toxicology, Satkhira Medical College, Satkhira, Bangladesh. All of the information was collected from the forensic examination of the corresponding dead bodies, which were submitted in the Department of Forensic Medicine & Toxicology (DFMT) at SMC for postmortem Analysis by police.

Statistical analysis: Statistical analysis was performed in Microsoft Excel (version 2007).

Results

According to the data of 2020 (Table I), a total of 222 unnatural deaths were occurred consisting of deaths by suicidal hanging (35.13%) poisoning (OPC, Alcohol overdose, Benzodiazepine, Methyl amphetamine), (21.17%), RTA (19.37%), homicidal death (9.9%), electrocution (6.75%), drowning (4.05%), accidental burning (2.25%) and fall down from height (1.35%).

Table I: Frequency of unnatural deaths in 2020 in Satkhira, Bangladesh.

Type of Unnatural Death	Frequency n (%)
Suicidal hanging	78 (35.12)
Poisoning	47 (21.17)
RTA	43 (19.37)
Homicidal death	22 (9.9)
Electrocution	15 (6.75)
Drowning	09 (4.05)
Accidental burning	05 (2.25)
Fall down from height	03 (1.35)
Total	**222 (100)**

Discussion

Unnatural deaths resulted from different incidences are increasing at an alarming rate day by day in Bangladesh. Among numerous unnatural MOD, the percentage of deaths due to suicidal hanging is the highest [7]. Satkhira is one of the major districts in Bangladesh where suicidal hanging frequently occurs.

Many people die and are seriously injured every year in Satkhira due to suicidal hanging [8]. But, in our case, we found 78 deaths in 2020.The number of deaths due to Suicidal hanging was higher in Satkhira recent years. However, according to this finding, 35.13% of unnatural deaths due to suicidal hanging occurred in Satkhira district in 2020 which were the highest among all unnatural MOD. From the last few years, an average of 61 deaths are occurring daily in Bangladesh due to Suicidal Hanging [9]. Lowest death due to suicidal hanging noted in the district of Jamalpur in 2019 was 11%.

Another unnatural MOD is poisoning by OPC, alcohol overdose, Benzodiazepine, Methyl amphetamine [10]. In 2020, 21.17% of unnatural deaths resulted from poisoning. Usually, OPC is available in rural area mostly and most of the people died from OPC poisoning. Another important agent Benzodiazepine overdose played major role in unnatural death due to poisoning. It is very risky and hazardous for the young generations. Around 3.3 million deaths are occurring yearly worldwide due to alcohol consumption [11]. In our country, people with diverse ethnic, cultural, and religious backgrounds are living. According to a report on health conditions in Bangladesh, alcohol use was measured to be significantly lower compared to the global average and western countries. Usually, alcohol consumption and associated problems are low here due to religious or social backgrounds, but there is a lack of legal action to control alcohol abuse for some specific class of people [12]. Recently, alcohol consumption is increasing in Bangladesh [13]. The young adults and early middle-aged people comprise the major proportion (42.1%) of alcohol users in Bangladesh. Among them, 7.1% are university students [14]. As we noticed, the maximum victims who died from alcohol poisoning were young adults and early middle-aged. Problems that people face after alcohol consumption may be either reluctant to attend rehabilitation clinics or simply goes unnoticed, which might be the cause of death from alcohol poisoning [15]. In recent years another substance Methyl amphetamine overdose noticed among number of victims. This substance overdose causes peripheral vasodilation and causes acute heart failure and death almost like the natural death.

In the last few years, homicidal death became almost daily unwanted incidents in Bangladesh. Homicidal death due to murder, strangulation, firing, bomb explosion common during and to create political violence, which is the main issue here [16]. Average 9.9% homicidal deaths occurred in 2020.

Electrocution is another crucial accidental MOD that contributes to increasing the number of unnatural deaths. Almost one-tenth of unnatural deaths were occurred by accidental electrocution in Satkhira each year.

The number of deaths from a fire burning in Satkhira district is very limited compared to other unnatural MOD. As it was found, only five deaths were happened in 2020. Burn injuries usually occur as a consequence of transferring heat from hot liquids (scalding), flames, and sometimes due to exposure to chemicals and ionizing radiation [17].

Satkhira is a district situated on the bank of the Ichamati River and also flowing with several larger rivers and southern part is opened with the Bay of Bengal, which is one of the major sea shore in Bangladesh. Every year Satkhira District is visited by monsoon flood and cyclones. As a result drowning cases are another common unnatural MOD in this district because individual drowning and boat drowning with people are occurring in the Ichamati River almost every month of a year. However, nine people were died by drowning in 2020.

Falling down from height is another cause of unnatural death. People working in construction sites commonly die accidentally. Sometimes, people fall down from a tree and get severe injuries that lead them to death. However, a total of three deaths were occurred in 2020.

Conclusion

Overall, this study presents the unnatural

deaths that occurred by a different mode of sudden or suspicious causes in the Satkhira district. The number of death due to suicidal hanging was significantly serious compared to other unnatural deaths. Though the deaths from other unnatural causes are low, these are also a public health issue and require proper insights of all concerned people including administrative bodies and social workers to minimize the affecting factors like poverty, unemployment, unawareness and familial disharmony that lead people to death.

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Original Article

Post-Surgical Outcomes of Elective Laparoscopic Cholecystectomy among the Patients of ASA III in Contrast To ASA I & II in Terms of Adverse Cardio-Respiratory Response

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Abstract

Background: The laparoscopic cholecystectomy has rapidly spread because of its several advantages over conventional open surgery. However, despite being minimal invasive, this surgical method, postoperative adverse cardio-pulmonary response and complications cannot be disregarded especially in ASA (American Society of Anesthesiologists grade) III co-morbid patients. **Aims and objective:** This study was aimed at to assess the hemodynamic and cardio-respiratory response among the co-morbid patients with ASA III in contrast to the patients with ASA I and II in case of routine laparoscopic cholecystectomy in our clinical setup. **Methodology:** This study was a prospective study with 130 patient of laparoscopic cholecystectomy admitted in Satkhira Medical College Hospital, Satkhira, Bangladesh. This was conducted from a period of January 2018 to December 2020. Study population was selected by convenient purposive. **Results:** A total 130 patients of laparoscopic cholecystectomy was in this research. Based on inclusion & exclusion criteria, 90 patients were in group A whereas 40 patients were in group B. Average operating time in both groups was 43 minutes and 55 minutes in respective groups. Mean anesthetic time was 50 minutes and 62 minutes respectively in both groups. No major differences is seen in between two groups in terms of postoperative outcome, hemodynamic response, postoperative pain and cardio-respiratory complications. However, all incidences were slightly higher in Group B, but within tolerable limit. **Conclusion:** Creating pneumo-peritoneum and performing laparoscopic cholecystectomy is reasonably safe procedure for the co-morbid patients with ASA III in contrast to the patients with ASA I and II in terms of cardio-pulmonary response.

Keywords: Pneumoperitoneum, laparoscopic cholecystectomy, postoperative outcome, haemodynamic response, postoperative pain and cardio-respiratory complications.

Introduction

Laparoscopic surgery is one of the most important diagnostic and therapeutic tools in the present surgical era. The benefits of minimal access techniques include less pain, early mobilization, minimal scar and shorter hospital stay, which have further increased its applications [1-3]. This minimally invasive procedure requires pneumoperitoneum for adequate visualization and operative manipul-

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ation. Systemic changes, in particular cardiopulmonary changes, also depend on the intra-abdominal pressure and the gas used. The major problems during laparoscopic surgery are related to the cardiopulmonary effect of pneumoperitoneum, systemic carbon dioxide absorption, venous gas embolism, unintentional injuries to intra-abdominal structures and patient positioning [4, 5].

The pneumoperitoneum leads to an increase in the intra-abdominal pressure with a consequent elevation of the diaphragm. This results in collapse of basal lung tissue ultimately causing decreased functional residual capacity (FRC), ventilation perfusion ratio (V/Q) mismatch, increase intrapulmonary shunting of blood which all lead to hypoxemia and increased alveolar arterial oxygen gradient (DO_2). These consequences can be managed by increased frequency of mechanical ventilation with mild positive end-expiratory pressure (PEEP) and also by increasing fraction of inspired oxygen (FiO_2) during laparoscopic surgery. Various studies support that a PEEP of 5 cm H_2O should be considered essential during laparoscopic surgeries to decrease intraoperative atelectasis caused by pneumoperitoneum. This increases the FRC, thereby improving gas exchange and oxygenation [6, 7].

The cardiovascular changes occurring during laparoscopic procedure are because of both mechanical and chemical effects of CO_2-induced pneumoperitoneum. The mechanical effect of pneumoperitoneum is compression of the inferior vena-cava, which causes reduction in venous return leading to decrease cardiac output and increase in the central venous pressure, resulting in increased vascular resistance in the arterial circulation [8-10]. These effects should be managed by infusing adequate fluid intraoperatively. Another effect is tachycardia, which is secondary to increased sympathetic discharge, hypercarbia and decreased venous return. The hypercarbia, acidosis, sympathetic stimulation from decreased venous return and vagal stimulation by stretching of peritoneum also disturb the cardiac rhythm. Moderate to severe hypercarbia can results in premature ventricular contractions, ventricular tachycardia and even ventricular fibrillation. Vagal stimulation may also cause bradyarrythmias [9].

During the laparoscopic procedure the position of the patient is either in Trendelenburg or in Reverse Trendelenburg. These positions have an impact on the cardiopulmonary function. In Trendelenburg position, there is an increase preload due to an increased in the venous return from lower extremities. This position results in cephalic shifting of viscera, which accentuates the pressure on the diaphragm. In case of reverse Trendelenburg position, pulmonary function tends to improve as there is caudal shifting of viscera, which improves tidal volume by decrease in the pressure on the diaphragm. This position also decreases the preload on heart and causes a decreased in the venous return leading to hypotension. The pooling of blood in the lower extremities increases the stasis and predisposes the deep vein thrombosis (DVT) [9, 10].

The main aim of this study was to estimate the operative outcome in terms of cardio-respiratory response of routine laparoscopic cholecystectomy in ASA (American Society of Anesthesiologists grade) [11-13] III patients in relation to ASA I & II patients.

Methodology

This study was conducted as a prospective study with a total number of 130 cases of elective/ routine laparoscopic cholecystectomy in Satkhira Medical College Hospital, Satkhira,

Bangladesh, from a period of January 2018 to December 2020. All the patients were examined during pre-anesthetic checkup (PACU) and categorized into two groups. Patients with ASA I and II were included in Group A, whereas patients with ASA III were included in Group B. Surgery was done under general anesthesia in all patients. Study population was selected by convenient purposive sampling based on inclusion and exclusion criteria. The survey data were usually be analyzed using both analytic as well as descriptive statistic such as; mean, SD, percentage etc.

Results

Among the total 130 patients of laparoscopic cholecystectomy, 90 patients were in group A whereas 40 patients were in group B. Average operating time in both groups was 43 minutes and 55 minutes respectively whereas mean anesthetic time 50 minutes and 62 minutes respectively in both groups. In group A, average BMI was 28.6 kg/m² and in group B, it was 26.1 kg/m².

Average systolic blood pressure (SBP) and diastolic blood pressure (DBP) in different phases of anesthesia (at 10th second, 1st minute, 3rd minute, 5th minute, pneumo-peritoneum and extubation), surgery and postoperative follow-up (at 4th hour, 8th hour, 24th hour and discharge) are depicted in Table 1. P values (calculated by chi square test) reflect insignificant results here.

Figure 1 is the graphical representation of systolic blood pressure (SBP) and diastolic blood pressure (DBP) at various stages with frequent fluctuation of these parameters in case of Group B in contrast to group A.

Changes in percentage saturation of Oxygen (%SaO2) at different phases are depicted in Figure 2. This fall and fluctuation were more pronounced in Group B than in group A.

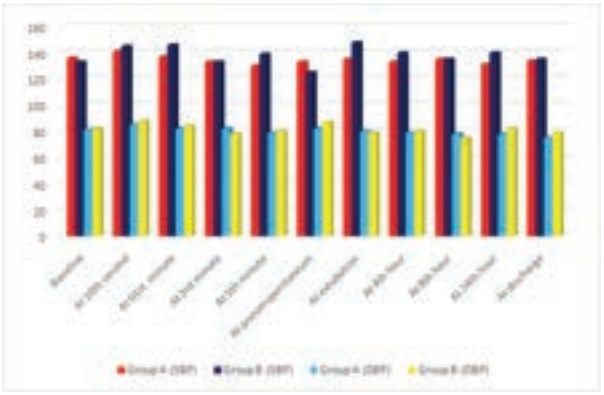

Figure 1: Hemodynamic parameters (SBP= Systolic Blood Pressure, DBP= Diastolic Blood Pressure).

Figure 2: Percentage saturation of Oxygen (SaO2) in both study groups.

Using the pain score (00-04), the average level of pain in postoperative period is represented in Figure 3, which suggests the declined trend of pain in the postoperative hours with time in both study groups.

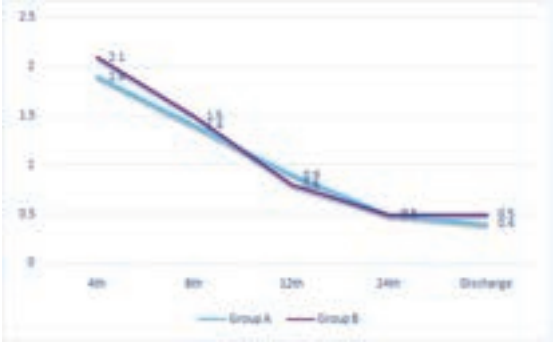

Figure 3: Average pain score at 4th, 8th, 12th, 24th hours and at discharge.

Table 1: Average SBP and DBP in both study groups at different phases.

Time of Measurement	Mean SBP mmHg		*p* value	Mean DBP mmHg		*p* value
	Group A	Group B		Group A	Group B	
Baseline	136	133	0.0786	81	82	0.2051
At 10th second	141	145		85	88	
At 01st minute	137	146		82	84	
At 3rd minute	133	133		82	78	
At 5th minute	130	139		79	80	
At pneumoperitoneum	133	125		82	87	
At extubation	135	148		80	79	
At 4th hour	133	140		79	80	
At 8th hour	135	135		78	75	
At 24th hour	131	140		78	82	
At discharge	134	135		75	79	
(Mean±SD)	**134 ± 3.0**	**138 ± 6.7**		**80 ± 2.7**	**81 ± 3.9**	

SBP = Systolic Blood Pressure; DBP = Diastolic Blood Pressure

Table 2: Postoperative cardio-respiratory complications in groups.

Respiratory Complications	Group A n (%)	Group B n (%)	*p* value
Hypoxia	4 (4.4)	3 (7.5)	**0.1778**
Atelectasis	5 (5.6)	4 (10)	
Pulmonary oedema	2 (2.2)	2 (5)	
ARDS	0 (0)	0 (0)	
Respiratory failure	1 (1.1)	1 (2.5)	
Cardiac Complications	**Group A n (%)**	**Group B n (%)**	***p* value**
Bradycardia	4 (4.4)	3 (7.5)	**0.6845**
Tachycardia	6 (6.7)	4 (10)	
Arrhythmia	1 (1.1)	1 (2.5)	
Hypotension	2 (2.2)	2 (5)	
Hypertension	3 (3.3)	5 (10)	
Cardiac arrest	0 (0)	0 (0)	
Myocardial ischemia	1 (1.1)	2 (5)	
Myocardial infraction	1 (1.1)	0 (0)	

Different respiratory and cardiac complications in the post-surgical are tabulated in Table 2 to compare and contrast between both groups. P values (calculated by chi square test) are statistically insignificant here.

Discussion

Among the total 130 patients, 69.2% & 30.7% were in Group A & B respectively. Most of the patients were in 41-50 years of age group (23.1% and 13.1% respectively in both groups). Majority of patients in both groups (46.9% and 21.5% respectively in both groups). In several studies with laparoscopic cholecystectomy at BIRDEM General Hospital, Dhaka, Bangladesh, Maitra TK et al. [11-13] suggested that majority of the patients of laparoscopic cholecystectomy were female (67.0%-75.8%). Most of them were in 40-50 years of age group (45.6%-57.1%). Mean ± SD of age was (43±2.9) years in a study of Maitra TK et al. 2017 [13].

Table 1 is representative of systolic blood pressure (SBP) and Diastolic blood pressure (DBP) in different phases of anesthesia (at 10th second, 1st minute, 3rd minute, 5th minute, pneumoperitoneum and extubation), surgery and postoperative follow-up (at 4th hour, 8th

hour, 24th hour and discharge). Here it has been reflected that systolic and diastolic blood pressure fluctuated more frequently in case of Group B in contrast to group A at different stages. In a study by Faruquzzaman [13, 14] in BIRDEM General Hospital, Dhaka, among the patients of routine laparoscopic cholecystectomy, similar pattern of changes in SBP and DBP were recorded in different phages of anesthesia and in postoperative period. No major difference was observed on the basis of co-morbidity and ASA Grade, although fluctuation was more pronounced in cases of ASA III patients, but invariably within limit. In another research, almost similar results were reflected [15].

Haemodynamic response in terms of MAP and HR has been depicted in Figure 1 which suggests that MAP and HR remained more stable in Group A than in Group B, but the ultimate response in both groups were within normal range in both groups in course anesthesia, surgery and in postoperative period. Most of the internationally acceptable researches in the very recent years represent almost same pattern of changes in hemodynamic parameters in response to pneumoperitoneum for laparoscopic cholecystectomy, suggesting that laparoscopic cholecystectomy is a safe and effective procedure in relation to adverse hemodynamic response in per-operative and in post-operative period among the co-morbid patients of ASA III, as much as it is safe for the patients of ASA I and II [15, 16].

Hypoxia in terms of percentage saturation of Oxygen (%SaO_2) at different phases has been represented in Figure 2. Here it has been observed that %SaO_2 fluctuated more in Group B than in Group A. And there found an abrupt fall of %SaO_2 in both groups soon after induction of anaesthesia (probably due to intubation). This fall was more pronounced in Group B in contrast of group A. In another study, the incidence of hypoxia in perioperative period found relative higher (approximately 12.5%) among the co-morbid patients of ASA III & IV in response to pneumoperitoneum for laparoscopic surgery [17].

Pain is an important confounding variable in this study, as inadequate postoperative control may lead to gross fluctuation and change in haemodynamic parameters (SBP, DBP, MSAP, HR and %SaO_2). Failure to early dynamic pain relief may cause excessive stress response along with the stress response of anesthesia and surgery and may lead to significant change in these haemodynamic parameters. The average postoperative pain (at 4th, 8th, 12th, 24th hour and at discharge) has been represented in figure 3 in terms of pain score (0-4). Here it has been found that there is gradual fall of pain in course of time, but there is no marked difference in results of both groups.

Assessment of the postoperative adverse cardio-respiratory response and complications were crucial parameters for this study. Post-surgical cardio-respiratory complications are depicted in table 2. In case of pulmonary complications, the incidence of postoperative hypoxia was found 4.4% in Group A in contrast to 7.5% in Group B. 03 (3.3%) and 04 (10%) cases of atelectasis in the postoperative period was found in Group A and B respectively. 1 case of pulmonary oedema was detected in each group postoperatively. The incidence of acute respiratory distress syndrome (ARDS) was found to be nil in both group. In each group, 01 patient developed respiratory failure in the postoperative period. In a nutshell, the incidence of postoperative hypoxia and atelectesis were slightly higher in Group B in contrast to group A, but in case of other major respiratory complications like ARDS and respiratory failure, the incidences are almost same.

P value (0.1778) is statistically insignificant here. In many research studies 16, 17], it was observed that pulmonary complications in the perioperative period are relative higher with the patients with severe co-morbidity. In the research of Maitra TK et al. [11-13], the incidence of atelectasis (7.8%) and ARDS (5.5%) was higher in ASA III and IV patients. In another research postoperative hypoxia (9.9%) found significantly higher in patients with severe co-morbidities, especially when adequate preoperative preparation and optimization was not done [16].

In case of cardiac response, bradycardia was found in 4.4% patients in Group A and 7.5% patients in group B. In contrary, 6.7% patients in Group A and 7.5% patients in Group B found to have tachycardia. In this study, it has been found that 1.1% patient in group A and 05% patients in Group B developed myocardial ischemia in the postoperative period. The incidence of sudden cardiac arrest was found to be nil in both groups. In the particular study of Maitra TK et al. [11-13], the incidence of perioperative arrhythmia (6.7%) and myocardial ischemia (3.3%) was relative higher among the cardiac co-morbid patients. In another research, the incidence of myocardial infarction (6.2%) was found to be higher in ASA III & IV cardiac co-morbid patients [18].

Conclusion

The fluctuation in hemodynamic parameters (systolic and diastolic blood pressure, mean arterial pressure, heart rate and percentage saturation of Oxygen) are more frequent in the perioperative period of routine laparoscopic cholecystectomy in cases of patients with ASA III in contrast to the patients with ASA I and II, but the overall postoperative cardio-pulmonary outcomes remains almost the same. Although the incidence of adverse cardio-pulmonary response in terms of post-surgical outcomes is slightly higher in patients with ASA III, but the results in the both groups to such relation are comparable. The ultimate results of this study is highly suggestive of that routine laparoscopic cholecystectomy is a safe and resilient procedure for the co-morbid patients with ASA III, as much as it is safe for the patients with ASA I and II.

Conflict of Interest

The author declares no conflict of interest.

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Original Article

Socio-Econmic and Other Risk Factors of Autism: Experience in an Upazila Health Complex of Bangladesh

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Abstract

Background: Autism is a difficult situation in Pediatrics practice. Autism, or autism spectrum disorder (ASD), refers to a broad range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. According to the Centers for Disease Control, autism affects an estimated 1 in 44 children in the United States. In our contest, we have less reliable data so far for this condition. **Aims & objective:** The aims of this study were to evaluate the possible socio-economic and other risk factors among autistic children attended an Upazila Hospital, Bangladesh. **Methodology:** This cross-sectional study was conducted in Upazila Health Complex, Dighalia, Bangladesh with a total number of 92 cases of autism. The duration this study was from January 2018 to December 2020. Convenient purposive sampling was the sampling method. **Results:** Majority (67.4%) of the study population were male children. More than fifty percent (52.2%) cases were detected in between 02-05 years. Majority of the affected families were from lower middle class socio-economic status (42.4%). Positive family history among the first degree blood relation was present in 15.2% (14 out of 92) cases. Other important risk factors in this study were preterm baby, low birth weight, maternal age, maternal diabetes mellitus etc. In this study, it has been found that 18.5% children had a history of preterm delivery. And 21.7% had history of low birth weight. 13% children had history of maternal diabetes mellitus. Maternal age at child birth was over 40 years in approximately 16.3% cases. **Conclusion:** At an Upazila hospital in Bangladesh, most of the autistic children were diagnosed at the age of 02-05 years. Most of the affected family is from lower middle class socio-economic status. Positive family history, preterm baby, low birth weight, maternal age, maternal diabetes mellitus etc. can be considered as important associated factors for autism.

Keywords: Autism, risk factors, socio-economic status, environmental factors.

Introduction

Autism is a neuro-developmental disorder which is marked by a persistent deficit in social interaction and social communication and restricted, repetitive patterns of behaviors/fixated interests or activities [1-3]. Autism is a complex disorder resulting from the combination of genetic and socio-environmental factors. Though various genetic factors are involved in expression of autism, exogenous factor can modify and control gene expression [4, 5]. Autism was originally defined by Leo

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Kanner in 1943 as an innate inability to create normal, biologically determined, emotional contact with others. The primacy of the social deficit is widely recognized, and lack of social reciprocity is a central part of the diagnosis. Beyond that, there have been great changes in the past decade in the conceptualization of autism and related disorders, eventually reflected in the draft of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, www.dsm5.org). Indeed, proposed revisions of the precedent edition of the manual (DSM IV-TR) [6, 7] include the combination of specific DSM-IV-TR diagnoses into a single broad autism spectrum disorder (ASD), and the identification of two domains of impairment (social communication and interaction, and restricted repetitive behavior) instead of three (social interaction, communication, and restricted repetitive and stereotyped patterns of behavior, interests and activities). Because of the high heritability estimates in autism, a major focus of research in autism has been on finding the underlying genetic causes, with less emphasis on potential environmental triggers or causes. Although remarkable advances in our knowledge of genetic causes have resulted from these great efforts made in the field of genetics, recent debates about increasing prevalence or heritability have highlighted the necessity to expand the research on environmental factors [8- 11].

In this study, different associated socio-economic and environmental factors of autistic children attended in an Upazila Health Complex, Bangladesh will be evaluated.

Methodology

This research was a cross sectional study in Upazila Health Complex, Dighalia, Khulna, Bangladesh. Convenient purposive sampling was used as a method of selecting study sample. A total number of 92 cases of autism from the period of January 2018 to December 2020 were included in this research, based on inclusion & exclusion criteria. The survey data were analyzed using both analytic as well as descriptive statistics. Informed consent was taken from patient's parents and ethical clearance was taken from the ethical review committee of Khulna Medical College Hospital, Bangladesh.

Results

A total of 92 cases of autism were included in this study, among which 67.4% (62 out of 92) were male children. Most of the cases (52.2%) were detected between 02-05 years.

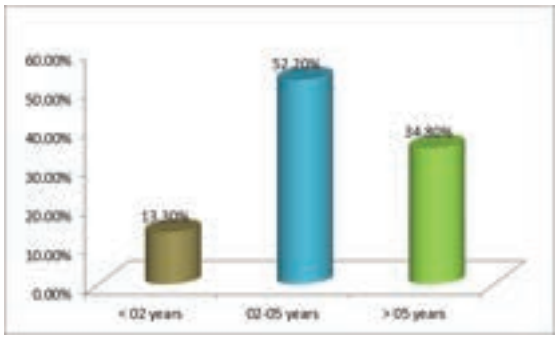

Figure 1: Case detection by age.

The overall socio-economic status of the affected family is shown in figure 2, which suggests that majority of the cases are belonged to the lower middle class families (42.4%).

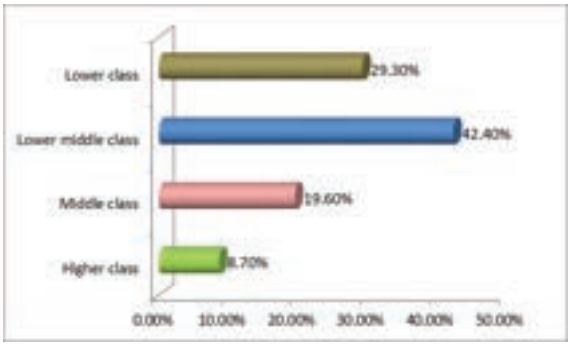

Figure 2: Socio-economic status of the affected family.

Table 1 depicts the associated family history of autism in the affected family. Approximately in 15.2% cases, there is positive family history among the first degree blood relatives.

Table 1: Family history of the affected family.

Family History	Frequency n (%)
No family history	58 (63)
First degree blood relation	14 (15.2)
Other relatives	20 (21.7)
Total	**92 (100)**

Some important associated factors of autism are illustrated in table 2.

Table 2: Associated factors of autism.

Risk Factors	Frequency n (%)
History of preterm baby	17 (18.5)
History of low birth weight	20 (21.7)
Maternal diabetes mellitus	12 (13)
Marriage between cousins	4 (4.3)
Maternal age >40 years	15 (16.3)
Associated drug history	7 (7.6)
Maternal viral infection	7 (7.6)

Discussion

Among the study population, majority (67.4%) were male children. Most of the cases (52.2% cases) were diagnosed between the age of 02-05 years. In approximately 34.8% cases, the condition was detected after 05 years. Only in 13.3% cases, diagnosis was made before 02 years. In a study in Bangladesh with 652 children, 71.9% were from 2-5 year age group and only 6.3% from less than 2 year of age with male predominance (79%, M:F=4:1) [1].In our research, most of the affected families were from lower middle class socio-economic status (42.4%), followed by 29.3% from lower class socio-economic background. In the previous study in Bangladesh, majority of children (78.5%) were from middle to higher income groups and urban areas (68%) [1].

Approximately in 63.0% (58 out of 92) cases, no family history of such disease was present. However, in 15.2% (14 out of 92) cases, there were history of such disease among the first degree blood relatives. And about 21.7% (20 out of 92) cases, there were positive history of the condition in other relatives (other than first degree blood relatives). Therefore, there is possible link between positive family histories with autism.

The exact risk factors for autism are still unknown. However, many possible factors have been suggested so far in many literatures. In this study, it has been found that 18.5% (17) children with autism had a history of preterm delivery. Moreover, 21.7% (20) had history of low birth weight. About 13% (12) children had history of maternal diabetes mellitus. High maternal age (age >40 years) was found in 15 (16.3%) cases. This was associated with 16.3% (15) cases. Association of these risk factors were also suggested in different previous research studies regarding autism [5-8].

Conclusion

This study was done at an Upazila Hospital, Bangladesh with autistic children. Most of the cases were detected between the ages of 02-05 years. 15.2% had positive family among first degree blood relatives. Majority of the affected family is from lower middle class socio-economic background. Several possible risk factors have been identified in this study including preterm baby, low birth weight, maternal age, maternal diabetes mellitus etc.

Conflict of Interest

The authors declare no conflict of interest.

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Original Article

A Comparative Study of Imipramine and Oxybutynin for the Treatment of Children with Primary Nocturnal Enuresis

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Abstract

Introduction: Nocturnal enuresis is a common childhood problem which affects 15-20% of 5 year old children, 5% of 10 year old children and 1-2% of people aged 15 years and over. **Methods:** A prospective randomized study was conducted on 60 patients in Sir Salimullah Medical College & Mitford Hospital at Urology department. This study was conducted on 60 selected children and adolescents with primary nocturnal enuresis. All children with primary nocturnal enuresis were selected as per selection criteria and evaluated by history, physical examinations, and relevant investigations. Before starting drug therapy all children were observed for two weeks for their initial number of bed wetting nights per week and termed as baseline study. Patients were grouped in two groups. Group-A were prescribed Imipramine (25 mg) half an hour before bed time and group-B by Oxybutynin (5 mg) twice daily. Both treatments continued for three months. Parents were instructed to maintain a voiding diary (number of wetting nights per week) and to note the adverse effects of drugs and also instructed to inform the urology department, SSMCMH if any serious adverse effects were observed. After 3 months patients came at 1st follow up visit and the efficacy of the drugs and adverse effects were noted. Then the patients discontinued the drugs and came a second follow up visit after next 3 months maintaining the same voiding diary when the relapse rate were noted. **Results:** The results indicated that both the drugs were not so effective for controlling the wetting episodes. Imipramine cured only in 23.3% cases with adverse effects like anxiety, insomnia, dry mouth, nausea, tiredness, palpitation, constipation and nervousness and after 3 months discontinuation only 16.7% remained continent (cured). Oxybutynin cured 30% patients with less adverse effects like headache, palpitation, dry mouth, anxiety and hesitancy and after 3 months discontinuation only 23.3% remained continent (cured). **Conclusion:** This study inferred that both Imipramine and Oxybutynin were not so effective for treating primary nocturnal enuresis. Though the efficacy of Oxybutynin is better than that of imipramine this is not statistically significant and Oxybutynin has got less adverse effects. Imipramine has more adverse effect but its efficacy is observed long lasting than Oxybutynin.

Keywords: Imipramine, Oxybutynin, Primary nocturnal enuresis.

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Introduction

Various factors contribute to the development of nocturnal enuresis, most notably genetic factors and stressful early life events. Physiologic disturbances such as nocturnal polyuria, small functional bladder capacity and decreased arousal response to the full bladder have also been identified [1]. The International Children's Continence Society has recommended the following standardization of terminology: nocturnal enuresis is the involuntary loss of urine that occurs only at night. It is normal voiding that happens at an inappropriate and socially unacceptable time and place [2]. It is either primary when the child has never been dry, or secondary enuresis when the child has relapsed after initial night time dryness.

The male to female ratio for nocturnal enuresis is three to two. It occurs more in children with positive family history (77% if both parents and 43% if single parent had the condition [3]. Children are not considered enuretic until they have reached five years of age. Mentally disabled children should have reached a mental age of four years before they are considered enuretic.

For the diagnosis of nocturnal enuresis to be established, a child five to six years old should have two or more bed-wetting episodes per month, a child older than six years of age should have one or more wetting, episodes per month [2]. Most children have achieved normal bladder control by the age of 2 to 3 years. Girls are earlier than boys. At age 6 year 10% have enuresis. Most children spontaneously gain bladder control by 10 years. Approximately 10% spontaneous resolution occurs per year [4]. But even at the age of 14 year, 5% still have enuresis, which may bring social and emotional stigma, stress and inconvenience to both child with enuresis and their families. Children who wet bed may experience parental disapproval, sibling teasing and repeated treatment failure that may lower self-esteem. From 15 to 25 percent of bed-wetters have secondary enuresis but the treatment approach and anticipated response are the same ([2].

Nocturnal enuresis is a non-fatal problem and has a good prognosis. For those families who ask for help, some will meet physician who share the traditional view on nocturnal enuresis as a marginal problem, requiring little attention and no treatment. But it is not true for at least 5% of children with nocturnal enuresis who will remain enuretic for the rest of their lives. Nocturnal enuresis is a very significant handicap for the affected child. Nocturnal enuresis is still perceived as a shameful condition and kept as a secret. But there is nothing shameful about bed wetting [5]. In case of primary nocturnal enuresis there is no organic lesion present that means it is functional.

The causes of Primary nocturnal enuresis is multifactorial such as- (a) Delayed functional maturation of central nervous system causing failure of arousal (b) Genetic/familial (c) Sleep disorder-deep sleep (d) Behavior and psychological disorder (e) Hormonal-low level of night time ADH secretion in children with primary nocturnal enuresis causes urine over production (f) Reduced nocturnal functional bladder capacity etc. A carefully obtained history, physical examination and urinalysis are sufficient for evaluation of most children in order to exclude any underlying pathology (developmental, neurological, obstructive sleep apnea or organic urinary tract diseases) that might present with enuresis [6].

Treatment is not recommended before the age of 5 years because at this age only 15% of children are still bed-wetting and most urinary

incontinence fades away naturally [7]. Treatment: 1-Nonspecific measures such as decrease fluid intake at night, awakening the child during night and avoiding food and drink. 2-Drug therapy which includes: tricyclic antidepressant (Imipramine), vasopressin analog (desmopressin) and anticholinergic drugs (Oxybutynin, Tolterodine). 3-Behaviour modification: recent studies, even in a limited number of cases, suggest the efficacy of behavioral therapy for enuresis [8]. Imipramine is a tricyclic antidepressant which has been used from long ago. It has anticholinergic activity, alters the sleep and arousal mechanism and increases nocturnal ADH production. It can cure enuresis in about 40% to 50% cases and results in improvement in another 10% to 20%. Discontinuation of the medication causes relapse in up to 60% of patients. It has some side effects such as anxiety, insomnia, dry mouth, nervousness, tremor, blurred vision, constipation, tachycardia, sweating, drowsiness, postural hypotension, confusion, tinnitus, headache, allergic skin reactions, raised intraocular pressure etc.

Oxybutynin is an anticholinergic and antispasmodic agent that decreases uninhibited bladder contractions. It competitively antagonizes the M1, M2 and M3 subtypes of the muscrinic acetylcholine receptor. It also has direct spasmolytic effects on bladder smooth muscle as a calcium antagonist. Oxybutynin is used successfully for treatment of urologic disorders such as urge incontinence and neurogenic bladder. Because detrusor hyperactivity plays a part in nocturnal enuresis, oxybutynin is suggested to be effective when treating nocturnal enuresis. It has some side effects including dry mouth, difficulty in urination, constipation, blurred vision, drowsiness and dizziness [9]. Oxybutynin should be regarded as first-line drug therapy. It fulfils criteria for cost effectiveness, safety, efficacy and for a significant proportion of patients tolerability but dry mouth is the most bothersome and frequent adverse effect.

Although Imipramine has been prescribed extensively with significant results, its use continues to decrease because of the potential for major side effects. Both drugs are of similar efficacy, Oxybutynin is slightly superior on some outcomes such as incontinence episodes per 24 hours [10]. Keeping these views in mind, the present work has been earned out to evaluate the efficacy and safety of Imipramine and Oxybutynin for the treatment of primary nocturnal enuresis.

Methods

A prospective randomized study was conducted on 60 patients in Sir Salimullah Medical College & Mitford Hospital at Urology department. This study was conducted on 60 selected children and adolescents with primary nocturnal enuresis. All children with primary nocturnal enuresis were selected as per selection criteria and evaluated by history, physical examinations, and relevant investigations. Before starting drug therapy all children were observed for two weeks for their initial number of bed wetting nights per week and termed as baseline study. Patients were grouped in two groups. Group-A were prescribed imipramine 25mg a half an hour before bed time and group-B by Oxybutynin 5mg twice daily. Both treatments continued for three months. Parents were instructed to maintain a voiding diary (number of wetting nights per week) and to note the adverse effects of drugs and also instructed to inform the urology department, SSMCMH if any serious adverse effects were observed. After 3 months patients came at 1st follow up visit and the efficacy of the drugs and adverse effects were noted. Then the patients discontinued the drugs and came a second follow up visit after next 3 months maintaining the same voiding diary when the relapse rate were noted.

Results

The results indicated that both the drugs were not so effective for controlling the wetting episodes. Imipramine cured only in 23.3% cases with adverse effects like anxiety, insomnia, dry mouth, nausea, tiredness, palpitation, constipation and nervousness and after 3 months discontinuation only 16.7% remained continent (cured). Oxybutynin cured 30% patients with less adverse effects like headache, palpitation, dry mouth, anxiety and hesitency and after 3 months discontinuation only 23.3% remained continent (cured).

Discussion

Imipramine have gained widespread acceptance for the treatment of primary nocturnal enuresis. Oxybutynin chloride, a newer

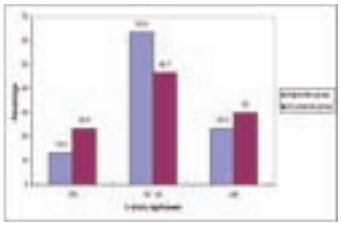

Figure 1: Comparison of outcome between groups at month 3.

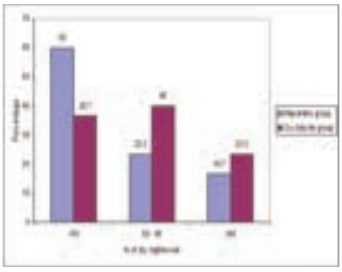

Figure 2: Comparison of outcome between groups after withdrawal of drugs.

Table I. Comparison of bed wetting between groups (n = 60).

Number of Bed Wetting	Imipramine Group (n = 30) Mean ± SD	Oxybutynin Group (n = 30) Mean ± SD	*p* value
At base line	4.20 ± 1.24	4.37 ± 1.25	0.6^{ns}
At the end of month 3	2.17 ± 1.18	2.37 ± 1.38	0.54^{ns}
3 months after discontinuation of drugs	3.13 ± 1.33	2.63 ± 1.43	0.16^{ns}

ns = not significant

Table II. Comparisons of complications in the both groups (n=60).

Complications	Imipramine Group (n = 30) Frequency n (%)	Oxybutynin Group (n = 30) Frequency n (%)	*p* value
Dry mouth	3 (10)	7 (23.3)	0.16^{ns}
Anxiety	4 (13.3)	3 (10)	0.50^{ns}
Insomnia	2 (6.7)	0 (0)	0.24^{ns}
Nausea	5 (16.7)	0 (0)	0.02^{s}
Tiredness	4 (13.3)	0 (0)	0.05^{ns}
Nervousness	4 (13.3)	0 (0)	0.05^{ns}
Palpitation	5 (16.7)	2 (6.7)	0.21^{ns}
Constipation	5 (16.7)	0 (0)	0.02^{s}
Hesitancy	0 (0)	3 (10)	0.11^{ns}
Headache	0 (0)	7 (23.3)	0.005^{s}
Fever	0 (0)	1 (3.3)	0.5^{ns}
Lethargy	1 (3.3)	0 (0)	0.5^{ns}

s = significant, ns = not significant; *p* value reached from Pearson's Chi-square test and Fisher's Exact test.

anti-cholinergic agent has proven effective and safe drug treatment for children with voiding dysfunction. The primary objective of the drug treatment of primary nocturnal enuresis is to control bed-wetting and thereby reducing the sufferings of the parents and children.

In this study the number of wetting night per week, adverse effects of the drugs and relapse rate were used as variables to assess the effectiveness and safety of the drugs. In this study imipramine 25mg tablet half an hour before bed time and oxybutynin 5 mg tablet twice daily were used in >7 year patients in two separate groups for 3 months. Then the efficacy and adverse effects are noted after 3 months from a voiding diary which the parents or patients were asked to maintain. Then all patients told to stop the drug. At the end of next 3 month after discontinuation of the drugs again the enuretic frequency noted from the same voiding diary.

In this study all cases were selected from outpatient department of urology, SSMCMH, age ranging from 7-16 years who had been suffering from primary nocturnal enuresis. The age range in a separate study done in 2005 was 5-14 years and had a diagnosis of voiding dysfunction [11]. Initially all the patients were observed for two weeks without any drug but with behavioral modification such as time voiding, fluid restriction at evening and bladder control exercise and their baseline enuretic frequency observed in term of bed wetting night per week.

By behavioral modification majority (80%) of the subjects did not show satisfactory result following 2 weeks while 20% showed improve ment to some extent. In another study, it was found that 6 month observation along with fluid restriction & time voiding only 16% became continent [12]. Among 60 patients 55% were male, 45% were female and ratio was 11:9. In 35% patients there were positive family history and another 65% it was none. Before starting drug therapy, 55% patients have 4-5 bed-wetting night/week, 28.3% have 2-3 bed-wetting nights/week and 16.7% have 6-7 bed wetting night/week. In imipramine group, before starting drug the mean enuretic frequency was 4.20 ± 1.24 SD and in oxybutynin group it was 4.37±1.25 SD. The difference was not significant. After 3 months of drug treatment these mean enuretic frequency dropped to 2.17±1.18 SD in imipramine group and 2.37±1.38 SD in oxybutynin group (bed wetting night/week). This improvement is not statistically significant. After 3 months discontinuation of the drugs again these menu values rises to 3.13±1.33 SD in imipramine and 2.63±1.43 SI) in oxybutynin group. This finding is almost similar with another study, which shown that imiprainine causes significant improvement of nocturnal enuresis but withdrawl causes relapse in significant number of patients [12]. In another study, 12 week treatment with Oxybutynin significantly reduces the mean urgency rating, urinary frequency and total number of voids in 24hr in continent patients with overactive bladder and nocturia [13].

In this study, standard definitions determined by the International children's continence society were adopted to designate final treatment outcomes on medication as - cured- >90% reduction in wetting episodes, improved - >50% reduction or failed - <50% reduction [14]. At the end of 3 months drug treatment it was found that in imipramine group cured in 23.3%, improved in 63.4% and failed in 13.3%. But after next 3 months discontinuation of the imipramine these values became - 16.7%, 23.3% and 60% respectively. Which was nearly their pretreatment status. This result is consistent with another study where cure rate was 36% at 6 month with imipramine on medication and it was only 16% al 12 months of medication [12]. This result also supported by several other studies where they found imipramine cured in patients with primary nocturnal enuresis during treatment period and after discontinuation of therapy it cause relapse in significant cases [15,16].

On the other hand, in oxybutynin group-at 3 month after therapy -cured 30%, improved

46.7% and failed 23.3%. At the end of next 3 month after discontinuation of the oxybutynin these values were—23.3%, 40% and 36.7% respectively. This study is consistent with another study in primary nocturnal enuresis done with anticholionergic-oxybutymin and showed 30% therapeutic benefit [17]. In another study 3 months treatment by oxybutynin in children with voiding dysfunction significantly improved the dysfunctional voiding symptoms score and they recommended it as first line treatment before invasive evaluation. In imipramine group nausea & constipation were significantly higher. Headache was most common in Oxybutynin group. Tiredness and nervousness were absent in oxybutynin group compared to 13.3% in imipramine group. No other adverse effects were found to any significant difference. This finding is consistent with another study with oxybutynin where dry mouth was 31% and headache was 4% [11]. In another study of Oxybutynin in children with overactive bladder headache was most common adverse effect and one patient showed palpitation [5]. In another study in children with primary nocturnal enuresis by imipramine adverse effects were anxiety, dry mouth, insomnia, nausea which is consistent with this study [17].

Conclusion

This study inferred that both imipramine and Oxybutynin were not so effective for treating primary nocturnal enuresis. Though the efficacy of Oxybutynin is better than that of imipramine this is not statistically significant and Oxybutynin has got less adverse effects. Imipramine has more adverse effect but its efficacy is observed long lasting than Oxybutynin.

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Original Article

Dacryocystorhinostomy for Chronic Dacryocystitis due to Nasolacrimal Duct Obstruction in the Elderly Patients: Our Experience

Md. Alamgir Kabir[1], Mehedi Hasan[2], Sumona Haque[3]

Abstract

Introduction: The average life expectancy of our country in 72 years. The incidence of acquired nasolacrimal duct obstruction (NLDO) increases with age. Dacryocystorhinostomy (DCR), the definitely treatment for NLDO, has success rate 80% to 100% with low complication rate (1-7%), but surgical outcomes have not been reported previously specifically for an elderly population, in which there may be increased risk for intraoperative and postoperative complication rates. **Methodology:** It was a retrospective Cohort study done in Jashore 250 bedded general hospital, Jashore, Bangladesh between the periods of July 1, 2015 and August 31, 2016. We took a total of 32 patients whose age was >72 years and 63 patients whose age was < 72 years. All patients underwent DCR and their post-operative complications were evaluated. **Results:** Non-serious post-operative complications were almost same in < 72 years aged patients (34.9%) and > 72 year aged patients (34.3%) but serious post-operative complications were relatively more in > 72 year aged patients. **Conclusion:** Non-serious ocular complications are same in aged and comparatively less aged patients and DCR can be performed in both age group.

Keywords: Dacryocystorhinostomy, chronic dacryocystitis, nasolacrimal duct obstruction.

Introduction

Acquired nasolacrimal duct obstruction (NLDO) is a common cause of epiphora in the elderly [1]. Definite treatment of NLDO require dacryocystorhinostomy (DCR), which has success rate of 80% to 100% when performed externally [2]. Complication rate range from 1% to 6% with the most common complications being hemorrhage, punctum erosion, silicon tube prolapse, retro-bulbar hemorrhage and subcutaneous or orbital emphysema [3].

Multiple factors confer an increased surgical risk on elderly patients, including functional decline reduced reserve capacity, poly-pharmacy and comorbid medical condition [4, 5]. Served studies have demonstrated increasing age to be an independent risk factor for perioperative complications and postoperative mortality [6-8]. This increased surgical risk in the elderly is present for high complex operations and less complex procedure such as cataract surgery [9].

The World Health Organization (WHO) defines elderly as chronological age of 65 years of age or older. Over the last half century the number of persons older than 65 years has tripled worldwide. The population comprising those 75 years of age and older projected to more than triple from 5.9 million to18.2 million by 2060, reaching 4.3% of the total population [10]. Because the elderly undergo the highest number of surgical procedures, there is a need for data to assess efficacy and safety of surgery

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in this group. With increasing life expectancies and increasing overall ages of those undergoing surgical procedures, a cut off of 65 years of age to be considered elderly with no longer reflects an extreme of age. In this study, we described the outcomes of DCR in patients 72 years of age or older compared with those of a younger Cohort.

Methodology

It was a retrospective Cohort study. Patients of 72 years of age or older undergoing external DCR at the Jashore 250 Bedded General Hospital, Jashore, Bangladesh between July 1, 2015 and August 31, 2016, were compared with a matched control groups of youngers patient (30-60 years of age) undergoing external DCR by the same surgeons. We took a total of 32 patients whose age was >72 years and 63 patients whose age was < 72 years. All patients underwent DCR and their post-operative complications were evaluated.

We reviewed the medical charts for the participants. The data abstracted from patients medical records included symptomatic relief and complications such as tube protrusion, infection, persistent bleeding and return to operating room. Statistical analysis included a 2 sample test to compare continuous variable, chi-squared testing for categorical comparison, and the generalized estimating equation model to control for non-independence.

The primary endpoint was symptom improvement. This was defined as complete or substantial resolution of presenting symptoms at the time of last follow-up. Secondary endpoints included anatomic patency as confirmed by lacrimal irrigation after DCR, adverse event rate and return to the operating room within 30 days of the initial surgery. The rate of pre-defined serious complication also was evaluated; there included vision loss, hemorrhage, require intervention, and adverse event requiring hospitalization for any reason within one month after surgery.

Results

It was a retrospective cohort study done in 250 bedded Jashore General Hospital. Patient's characteristics are shown in table 1 while patient's non-serious and serious complications are stated in table 2 and 3 respectively.

Table I. Patients characteristics (n = 95).

Patients Characteristics		> 72 yr n = 63 n (%)	< 72 yr n = 32 n (%)	*p* value
Gender	Male	16 (24.4)	8 (25)	0.22
	Female	47 (74.6)	24 (75)	0.97
Duration of Symptoms (days)		557	783	0.22
Primary Diagnosis	Epiphora	51 (72)	31 (74)	0.97
	Dacrocystitis	9 (13)	9 (21)	0.09
	Both	11 (15)	2 (5)	0.12
Laterality	Right	36 (49)	21 (50)	0.91
	Left	37 (51)	21 (50)	0.9
	Bilateral	10 (16)	10 (31)	0.99
No of DCR performed		73	42	0.08
Comorbid Eyelid	Eyelid Condition	15 (21)	20 (48)	0.01
	Eyelid Procedure Condition	5 (7)	5(12)	0.33
Median Follow-up		3.6 yr	6.6 yr	0.07

p value obtained from 2 sample test.

Table 2: Non-serious postoperative complications.

Complications	> 72 yr n (%)	< 72 yr n (%)	*p* value
Tube protrusion	8 (11)	4 (9)	0.74
Canaliculitis	4 (5)	1 (2)	0.65
Punctal erosion	1 (1)	1 (2)	0.9
Punctal adherence	1 (1)	0 (0)	0.88
Retained tube	0 (0)	1 (2)	0.88
Pre-septal cellulitis	1 (1)	0 (0)	0.88
Dry eye	4 (5)	2 (5)	0.78
Pyogenic granuloma	1 (1)	4 (9)	0.54
Sinusitis	2 (3)	0 (0)	0.62
Persistent bleeding	3 (4)	2 (5)	0.96
Prolong monitoring	0 (0)	2 (5)	0.52
Colitis	2 (3)	0 (0)	0.52
Urinary retention	0 (0)	2 (5)	0.52

p value obtained from chi squared test.

Table 3: Serious postoperative complications.

Complications	> 72 yr n (%)	< 72 yr n (%)	*p* value
Stroke	1 (2)	1 (9)	0.81
MI	0 (0)	1 (2)	0.74
Hospitalization	0 (0)	1 (2)	0.74
Bleeding required intervention	0 (0)	0 (0)	0.99
Death	0 (0)	1 (2)	0.74
Vision loss	0 (0)	0 (0)	0.99

p value obtained from chi squared test.

Discussion

In this study, we evaluated the safety and effectiveness of DCR operation in a population of patients 72 years of age and older. Compared with a younger Cohort, elderly patients were less likely to experience symptomatic relief after DCR. The older population may be more likely to have multiple conditions and not a simple NLDO, leading to other nonsurgical causes of persistent symptom. In our study, elderly patients statistically were more their counterparts, which may point to the complicated nature of symptoms in the elderly.

Discussion

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In our study, a total of 32 patients of 72 years of age or older met inclusions criteria for the study group. The mean age at the time of surgery was 72.8 ± 9.2 years. Ten patients underwent bilateral surgery, resulting in a total of 42 DCR procedures in this study group. All surgeries was external DCRs. There were sixty three control patients with a mean age at surgery of 63.2 ± 11.6 years. Ten patients underwent bilateral surgery, resulting in a total of 73 DCR procedures in the control group. Both groups consisted of approximately 75% woman and 25% men. Patients characteristics is given in table 1. The elderly group sought treatment with a longer duration of symptoms (783 days vs 557 days) days in the control group, although this was not statistically significant (p = 0.22). Epiphora was the primary symptom in 74% of elderly patients and 72% of younger patients. Dacryocystitis was more frequent primary symptom in elderly group and 13% in the younger group. The elderly patients statistically were more likely to seek treatment with comorbid lid conditions (48% vs 21%; p = 0.01). This condition included entropion, eyelid laxity, conjunctochalasis, blepheritis, trichiasis, and everted punctum, punctum stenosis, kissing puncta, lagophthalmos, and meibomian gland dysfunction.

There was no difference between groups with respect to common postoperative complications (Table 2). These complication included silicone stent protrusion, infection such as canaliculitis, prolong monitoring in the post anesthesia care unit, punctual erosion or cheese wiring, persistent bleeding, dry eye, pyogenic granuloma formation, retained silicon stent, sinusitis, antibiotic related colitis, preseptal cellulitis, punctal adherence or fusion, syncope, and urinary retention. Antibiotics were prescribed before surgery only in patients with dacryocystitis. All patients who experienced prolonged bleeding had been using warfarin or aspirin. Data from the medical record regarding how long patients with held anticoagulation in the postoperative period were not available for all patients. One patients taking warfarin underwent bridge therapy with heparin.

Serious adverse events were pre-defined as stroke, myocardial infarction, hospitalization within 1 month, bleeding requiring intervention, and death. There was higher rate of serious adverse events in the elderly group, compared with the younger cohort (15% vs 2%; p = o.o1; Table 3). Five serious adverse events in the elderly population were documented and included 1 patient each with stroke 25 days after surgery, hospitalization 3 days after surgery for syncope and monitoring, bleeding after surgery requiring arterial embolization by neuroradiology, and an emergency room visit for hip arthroplasty, dislocation requiring reduction. The patient with syncope experienced a loss of consciousness while puffing in eye drops 3 days after DCR. The single serious adverse events in the younger cohort was a hospital admission in the week after surgery for epistaxis requiring packing and ball on placement, but no surgical intervention. The patient was taking aspirin. Only 1 patient in the younger cohort required a return to the operating room within 30 days of the initial DCR. This was for excision of a lesion that had been biopsied during DCR, and pathologic examination showed lentigomaligna melanoma. No patients in either group required surgical intervention for bleeding or wound infection within 30 days of initial DCR.

The rate of common post-operative complication was similar between 2 Cohorts. The rates found in both groups in our study were considerably higher than other post-operative complication rates reported in the literature. One explanation for this is that we classified many common post-operative events as complications that may not be documented routinely in the literature, including syncope, urinary retention, and antibiotic related colitis. We also included severely relatively common complications that other studies may be have overlooked, including prolapse stents, punctual cheese wiring and persistent postoperative bleeding [11-14].

The rates of serious complications was higher in the elderly group. Although all of the serious complications occurred within 1 month of surgery, only the single incident of bleeding in each cohort is directly attributable to the DCR. It was not possible to know whether the serious events of stroke, myocardial infarction, and syncope, requiring hospitalization were precipitated by the surgery, anesthesia, or both. All patients with serious complication underwent surgery with general anesthesia.

Elderly patients undergoing DCR had a lower success both within our study and compared with all patients examined in the literature. Other studies have looked at success rates after DCR without including age as a covariant. For example in a population-based study of

patient treated from 1976 through 2000, average at NLDO diagnosis was 50.5± 22 years, with a DCR success rate of 94%. A recently published study examined patient undergoing external DCR from 2009 through 2011 and found the average age at time of surgery to be 52.1 ± 20.7 years, with 82.8 % of patients noting full resolution of symptom [15]. In our study, patients older than 72 years showed significantly lower success rate of external DCR (64%). Compared with the 80% to 100% success rate historically documented. With aging patient population, the effect of age on surgical outcomes is becoming more relevant. To our knowledge, no existing studies examine outcomes of DCR in a subset of elderly patients.

This study had several potential limitations. First, its retrospective design relies on accuracy and completeness in the medical record. We were not able to define anatomic patency in all postoperative patients because this was not documented routinely, especially in patients who are asymptomatic. This does not affect the study conclusion because our main end point was symptomatic improvement for which anatomic patency may have only partial relevance. However, the participants had routine NLDO, the treatment of which should be similar to cases in a non-academic medical centers.

Conclusion

Although most elderly patients experience symptom resolution after DCR, the rate of symptom resolution was lower than that of younger patients. The risk of routine complications was similar between the groups. The risk of serious complications was higher in the elderly group.

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Original Article

Surgical Audit of Patients in Satkhira Medical College Hospital in 2021

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Abstract

Objectives: To analyze various cases of surgery in out-patient department, emergency and in-patient department of surgery admitted in Satkhira Medical College Hospital, Satkhira, Bangladesh. **Methodology:** This observational study was conducted from January 1 to December 31, 2021. All data was collected on a specially designed formats. Basic information of patients like demographic characters, management (operative or conservative management) and the outcomes of management (discharge, the presence of co-morbidities, postoperative complications and death) were recorded. Data was analyzed by using Microsoft XL 2010. **Results:** Total number of admissions during study period was 1750, out of these 54.28% (n=950) were males and 45.71% (n=800) were females. The mean age of the patients was 42 years. Anal & perianal diseases were the commonest procedure followed by diabetic foot problem. Most of the patients had uneventful recovery. Death rate was only 0.97%. **Conclusion:** Most of the patients were managed by surgery. Surgical audit is needed for proper planning and better outcome of health care system.

Keywords: Surgical audit

Introduction

The word audit comes from the Latin word audire meaning ''to hear'' [1] .Clinical audit is quality improvement process that seeks to improve patient care and outcome through systematic review of care against explicit criteria and the implementation of change. Adapting audit system for the diversified field of surgery makes possible to analyze huge data and identifies areas for improvement [2]. It may help in estimation of work burden, sorting of common problem and preparing for their management in future.

The surgical audit is an important strategy to maintain standards in surgical care. This is systematic, critical analysis of the quality of surgical care that is reviewed by peers against explicit criteria or recognized standards, and then used to further improved surgical practice. In surgical audit, it is difficult to set standards and apply, so we need to measure the variations in outcome. It is non-putative, educational process aimed at improving the outcome of patients. Locally relevant criteria should be compared to guide local resource allocation, surgical practice and decision making. A good

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surgeon must never hide his/ her faults but should learn from them in order to serve patients and improve practice [3].

The aim of this study is to observe and analyze the outcomes of patients, service improvements and innovative techniques for the benefit of the patients at Satkhira Medical College Hospital, Satkhira, Bangladesh.

Methodology

This retrospective observational study was conducted at department of surgery in Satkhira Medical College Hospital, Satkhira, Bangladesh between the periods of January 1 to December 31, 2021. Here all surgical patients were admitted by Resident Surgeon in working days or referred from other disciplines. Patients of pediatric surgery were excluded in this study. Demographic data were collected from admission registrar. Details of the surgical procedures were recorded from Operation Theater (OT) registrar. All data were compiled in spread sheet and analyzed by Microsoft XL-2010.

Results

A total number of 1750 patients were admitted in Satkhira Medical College Hospital during the year of 2021. Among them, 54.28 % (n = 950) were males and 45.71% were females (n = 800). The mean age of the patients were 42 years. The minimum hospital stay was 7 days and maximum was 21 days. Operative procedure was done in 86.63% (n = 1516) and conservative management in 13.37% (n = 234). Anal & perianal diseases were the commonest procedure 26.38% (n = 400). Laparoscopic Cholecystectomy was second most common operation in surgery 11.87% (n = 180). A significant number of patients were admitted with diabetes mellitus 14.85% (n =2 60), hypertension 11.42% (n = 200), chronic obstructive pulmonary disease (COPD) 4.11% (n = 72) and hepatitis B 0.57% (n = 10). The post-operative recovery was uneventful except wound infection 2% (n = 35), wound dehiscence 1.42% (n = 25), pulmonary atelectasis 0.57% (n = 10) and anastomotic leakage 0.17% (n = 3). The mortality was only 0.97% (n = 17).

Table I: Demographic data, comorbidity and post-operative complication of patients (n = 1750).

	Variables	Male n (%)	Female n (%)
	Number of patients	950 (54.28)	800 (45.75)
Comorbid disease	DM	260 (27.36)	118 (13.8)
	HTN	200 (21.05)	92 (11.5)
	COPD	72 (7.57)	33 (1.12)
	Hepatitis B	10 (1.05)	5 (0.62)
Post-operative Complications	Wound infection	35 (3.68)	16 (2)
	Wound dehiscence	25 (2.63)	12 (1.5)
	Pulmonary atelectasis	10 (1.05)	5 (0.62)
	Anastomotic leakage	03 (0.31)	1 (0.12)
	Mortality	10 (1.05)	7 (0.87)

DM = Diabetes Mellitus, HTN = Hypertension, COPD = Chronic Obstructive Pulmonary Disease

Table 2: Disease Profile of in-patient in the department (n = 1750)

Disease	Quantity
Abscess	100
Cholelithiasis	250
Choledocholelithiasis	100
Acute Appendicitis	150
GIT Malignancies	50
Peptic Ulcer diseases	200
Peripheral Vascular disease	150
Physical Assault	300
Diabetic Foot	250
RTA	200

Table 3: Disease Profile of patients in OPD (n = 2154)

Disease	Quantity
Peptic Ulcer disease	235
Biliary disease	177
Peripheral Vascular disease	225
Urolithiasis	163
Urological Malignancies	116
Surface swelling	218
Hydrocele	158
Hernia	212
Anal Disease	350
Diabetic Foot problem	300

Table 4: List of major operations (n = 1516)

Name of Operation	Quantity
Open Gal bladder Surgery	60
Choledocho lithotomy	40
Open appendisectomy	120
Open hernia Surgery	150
Hydrocele Surgery	60
Lap.cholecystectomy	180
Lap.appendisectomy	60
Lap. Inguinal hernia surgery	30
Lap. Incisional hernia surgery	30
Gut malignancy	30
Peptic ulcer disease surgery	30
Sub acute intestinal obstruction	20
Whipples' Surgery	08
Choledochal Cyst Surgery	4
Breast Cancer Surgery	40
Benign Breast Disease Surgery	50
Stomach Cancer Surgery	40
Anal & Perianal Disease Surgery	400
Renal Surgery	100
Hiatus Hernia Surgery	04
Skin grafting	30
Amputation	30

Table 5: List of minor operations (n = 267)

Name of Operation	Quantity
Sebaceous cyst excision	60
Dermoid cyst excision	40
Lipoma Excision	57
Circumcission	11
Wound dehiscence repair	36
Abscess drainage	63

Table 6: List of emergency operations (n = 388)

Name of Operation	Quantity
Intestinal Obstructions	44
Burst Appendix	45
Perforation	31
Diagnostic Laparotomy	22
Abdominal Trauma	14
Volvulus	24
RTA	60
Acute Appendicitis	148

Table 7: List of minor operations in OPD (n = 190)

Name of Operation	Quantity
Circumcision	28
Abscess Drainage	32
Wound Dressing	52
Excision of S.Cyst	30
Excision of Lipoma	48

Discussion

The surgical audit has become an important part of modern surgical practice and integral requirement for the surgeons to continuing professional development. In our study, a total number of 1750 patients were admitted in our hospital. This is higher than Waker SH. et al. [4]. There was male predominance (54.28%); a slightly lower than Skaikh M .et al. (56%) [5]. The mean age of the patients was 42 years and this finding is higher than the study done by Jawid M. et al. [6]. The cause of disparity is due to pediatric group of patient excluded in this study. Anal & perianal diseases operation was the principal operation in our study. Other study shows cholecystectomy was their main surgical procedure. Qureshi et al. [7] and Bhatti et al. [8] reported appendectomy was their main operation. Seventeen (17) patients died during this period, 10 due to septicemia, 5 due

to cardio-respiratory failure and 2 due to electrolyte imbalance from anastomotic failure. The mortality rate was (0.97%), lower than other study.

Conclusion

In our country, a structured program for clinical audit is not available. It is not a regular practice to conduct surgical audit routinely. Though proper structural surgical audit is a good surgical practice. Knowledge of the current pattern of admissions, disease spectrum and health care resources is beneficial for both the clinicians and patients.

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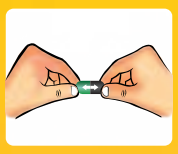

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