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Original Articles

| | Page |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Depiction of death due to Road Traffic Accident-an autopsy based Study Elias Bin Akber ¹ , Syed Md. Tanjilul Haque ² , Md. Areful Hoque ³ , Ahmad Sadek ⁴ , Mohammad Shakil ⁵ , Tahmina Akhter ⁶ , Israt Jahan ⁷ | 1 |
| Relation between Chlamydia pneumoniae infection and mild to moderate hypertension Tahera Khanom ¹ , Syeda Rafiquen Nessa ² , Mohammad Sohel Showkath ³ , Sarker Hafiz Mahmud ⁴ , Taslima Akter Shumi ⁵ | 7 |
| Prevalence of non alcoholic fatty liver disease and its biochemical parameter Md. Rashedul Alam ¹ , Major Mohammad Nesar Uddin Ahmed ² , Bappa Gautom ³ , Roksana Yeasmin ⁴ , Sharif Mohammad Ehsan ⁵ , Salah Uddin Ahmed ⁶ | 12 |
| Comparative study of quality of subarachnoid blocks for caesareansection by using bupivacaine alone & bupivacaine- fentanyl combination S.M. Tauhidur Rhaman ¹ , Soral Kumar Saha ² , Muhammad Shamsul Arefin ³ , Shamima Akter ⁴ , Anwar ul Alam ⁵ , Farhana Amin ⁶ | 17 |
| Comparing Principle-oriented and Information-oriented Educational Approach towards Human Genetics: A Profile of Selected Textbooks Farjana Akhoond ¹ , Tahmina Akter ² , Bilkis Akter ³ , Auni Kamal ⁴ , AKM Jakirul Alam ⁵ | 21 |
| Review | |
| Road traffic accident (RTA) is a common disaster in Bangladesh Ahmad sadek ¹ , Elias Bin Akber ² , Nashid Tabassum Khan ³ , Sumon Mutsuddy ⁴ , Mohammad Mahbub-UL-Alam ⁵ | 27 |
| Case Report | 31 |
| Twin Pregnancy With Single Fetal Demise Major Asma Rahman | |

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Depiction of death due to Road Traffic Accident-an autopsy based Study

Elias Bin Akber¹, Syed Md. Tanjilul Haque², Md. Areful Hoque³, Ahmad Sadek⁴, Mohammad Shakil⁵, Tahmina Akhter⁶, Israt Jahan⁷

Abstract

Background: We, as medico-legal expert observe a lot of cases of road traffic accident (RTA) annually. It implies RTAs have become one of the leading health hazards in context of time. **Objective:** To evaluate the socio-demographic and injury patterns found in RTA victims along with précised cause of death. **Materials and Methods:** This study is a retrospective autopsy based study conducted at Sir Salimullah Medical College Mortuary from 01.01.2014 to 31.12.2016 which revealed 1882 RTA cases out of the total 8500 medico-legal autopsies. Information regarding age, sex, type of the victim, date & time of incidence and death were collected from the inquest reports, hospital records and case files. They all were then compiled, analyzed and tabulated. **Results:** This study reveals 1882 cases of RTA (22.14%) of the total 8500 medico-legal autopsies. The most affected age group was 20-29 years i.e 476 cases (25.29%). 1452 male victims (77.15%) outnumbered the females i.e 430 cases (22.84%). Commonest victims were pedestrians i.e 862 cases (45.80%) followed by vehicle occupants 502 (26.67%), drivers 332 (17.64%), bicyclists 171 (9.08%) and undetermined 15 cases (0.79%). Most external injuries were found in head, neck & face regions i.e 2790 (33.53%) followed by lower limbs (2345), upper limbs (1378), thorax (1203) and abdomen (603). We observed 828 fracture of the skull (20.41%) followed by lower limbs (802), thorax (780), upper limbs (729), face (717), pelvis (105) and spine in 94 cases. Brain injuries were found in 803 cases (24.73%) followed by lungs, heart & great vessels, liver, stomach spleen, kidneys, intestine, diaphragm and spinal cord. Maximum victims died due to head injury in 814 cases (43.25%) followed by multiple trauma, haemorrhagic shock, spinal cord injury, septic shock and crush syndrome. **Conclusion:** Most of the victims were male and commonest site of injury was head, neck & face region. Head injury was the commonest cause of death.

Key words: Road traffic accident, injury, victim, death, autopsy

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For Authors Affiliation, see end of text.

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Introduction

The term accident has been defined as an occurrence in the sequence of events which usually produces unintended injury, death or property damage¹. Accidents constitute a complex phenomenon of multiple causation. The etiological factors are classified into human and environmental factors². An injury is any harm whatever illegally caused to a person in body, mind, reputation or property³. Injury can lead to death in association with any form of transport, but the most common are with road, rail, and air transport systems⁴. Amongst all, road traffic accidents claim largest toll of human life and tend to be the most serious problem world over⁵. As countries become more developed, there is often an accompanying rise in life expectancy.

However, increasing motorization that accompanies economic growth has led to an increase in road traffic accidents (RTAs), and a corresponding rise in fatalities. Indeed, the World Health Organization has predicted that traffic fatalities will be the sixth leading cause of death worldwide and the second leading cause of disability-adjusted life in the developing countries by the year 2020⁶. Due to fast pace of modernization, the basic needs including the requirement of a vehicle for transportation are expanding rapidly and resulting in an epidemic situation of injury everywhere including developing countries like Bangladesh⁷. Persons involved in vehicular accidents sustain a large variety of injuries. These injuries often assume definitive pattern in case of a pedestrian or a driver or a passenger, such accidents are so common now-a-days that a doctor may be asked to draw an opinion from the injuries

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found on the body⁸. The spectrum of vehicular injuries is indeed immense. All kinds of injuries may be caused in vehicular accidents, depending on the following factors –a)Site of impact, b)Direction of impact, c)Force of impact, d) Behaviour of vehicle after impact, for example overturning , e) Ejection of victim, and, f) Supervening factor, for example, fire⁹. The important factors for road traffic accidents are human errors, driver fatigue, poor traffic sense, mechanical fault of vehicle, speeding and overtaking violation of the traffic rules, poor road conditions, traffic congestion, road encroachment etc¹⁰. The problem appears to be increasing rapidly in developing countries¹¹. The basic role of an autopsy surgeon is to reveal the cause of death in vehicular accidents whether it is an accident, bad luck, negligence while driving, suicide or homicide. This study has been done to describe the nature, distribution and types of injuries received during tragic road traffic accidents along with précised socio-demographic pattern of the unfortunate victims so that possible preventive measures can be taken.

Aims and Objectives

- To draw public attention regarding road traffic accident(RTA)
- To evaluate the cause of death in RTAs
- To determine the epidemiological factors in relation to RTA
- To prevent the occurrence of RTA

Materials and Methods

The present study was conducted in the Forensic Medicine Department of Sir Salimullah Medical College, Dhaka. The study period was of three years from 01.01.2014 to 31.12.2016. The material for this study included all dead bodied of the victim of road traffic accident brought to Sir Salimullah Medical College Mortuary. Thorough, elaborative and meticulous postmortem examinations of the dead bodies were done there. Information in relation to age, sex and type of the road users(victims) were collected from the inquest report, hospital records and case files. These informations were then compiled, analyzed and tabulated.

Observations and Results

We observed most of the cases of road traffic accidents (RTAs) in the year 2016 i.e 689 cases (22.85%) out of the total 3015 medico-legal autopsies. It was evident that there was an annual increase in the total number of RTAs i.e we observed 565 cases (21.56%) out of the total 2620 autopsies

in 2014 and 628 cases (21.91%) out of the total 2865 autopsies in 2015. In total we observed 1882 cases of RTA out of the total 8500 medico-legal autopsies accounting for 22.14%(Table-1)

Most of the victims were from the age group 20-29 years i.e 476 cases (25.29%) followed by the age group >60 years i.e 347 cases (18.43%), 10-19 years 312 cases (16.57%), 40-49 years 231 cases (12.27%), 50-59 years 209 cases (11.10%), 30-39 years 202 cases (10.73%) and 0-9 years 105 cases comprising 5.57% of the total 1882 cases of RTA. (Table-2)

Predominant victims were male i.e 1452 cases (77.15%) and we observed 430 female victims comprising 22.84% of the total 1882 cases. (Figure-1)

Pedestrians were the commonest victims i.e 862 cases (45.80%) followed by vehicle occupants 502 cases (26.67%), Drivers 332 cases (17.64%), Bicyclists 171 cases (9.08%) and 15 victims were undetermined comprising 0.79% of the total (Figure-2)

Considering distribution of external injuries we observed 2790 injuries (33.53%) over head, neck & face (960 abrasions+943 contusions+887 lacerations) followed by lower limbs 2345 cases i.e 28.18% (819 abrasions+737 contusions+789 lacerations), upper limbs 1378 cases i.e 16.56% (972 abrasions+209 contusions+197 lacerations), thorax 1203 cases i.e 14.46% (807 abrasions+189 contusions+207 lacerations), abdomen & pelvis 603 cases i.e 7.24% (262 abrasions+129 contusions+212 lacerations). In total we observed 8319 visible external injuries out of the total 1882 victims of RTA. (Table-3)

Considering observation of bony fractures we observed most of the fractures were in the skull bones i.e 828 cases (20.41%), lower limbs in 802 cases (19.77%), thorax in 780 cases (19.23%), upper limbs 729 cases (17.97%), face 717 cases (17.68%), pelvis 105 cases (2.58%) and spinal fractures in 94 cases comprising 2.31% of the total. We observed the total of 4055 fractures out of the total 1882 RTA victims. (Table-4)

Considering distribution of visceral injuries we observed injury to the brain in 803 cases (24.73%) followed by lung

injury in 689 cases (21.22%), heart & great vessel injury in 652 cases (20.08%), liver injury in 201 cases (6.19%), stomach injury in 188 cases (5.79%), spleen injury in 184 cases (5.66%), Kidney injury in 176 cases (5.42%), intestinal injury in 164 cases (5.05%), diaphragmatic injury in 107 cases (3.29%) and spinal cord injury in 82 cases comprising 2.52% of the total 3246 (100%) visceral injuries among the total 1882 RTA victims (Table-5)

Majority of the victims died due to head injury i.e in 814 cases (43.25%) followed by multiple trauma 729 cases (38.73%), haemorrhagic shock 193 cases (10.25%), spinal cord injury 79 cases (4.19%), septic shock 38 cases (2.01%) and crush syndrome 29 cases comprising 1.54% of the total 1882 cases of RTA victims (Figure-3)

Table 1: Year-wise Distribution of RTA cases

| Year | Total No of PM Examination | Cases of RTA | Percentage% |
|-------|----------------------------|--------------|-------------|
| 2014 | 2620 | 565 | 21.56% |
| 2015 | 2865 | 628 | 21.91% |
| 2016 | 3015 | 689 | 22.85% |
| Total | 8500 | 1882 | 22.14% |

Table 2: Age-wise distribution of the RTA victims (N=1882)

| Age (Years) | No of RTA victims | Percentage% |
|-------------|-------------------|-------------|
| 0-9 | 105 | 5.57% |
| 10-19 | 312 | 16.57% |
| 20-29 | 476 | 25.29% |
| 30-39 | 202 | 10.73% |
| 40-49 | 231 | 12.27% |
| 50-59 | 209 | 11.10% |
| >60 | 347 | 18.43% |

Figure 1: Sex-wise distribution of the RTA victims (N=1882)

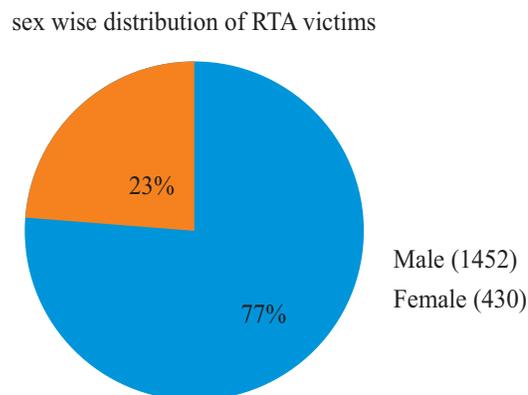


Figure 2: Types of road users killed in RTA (N=1882)

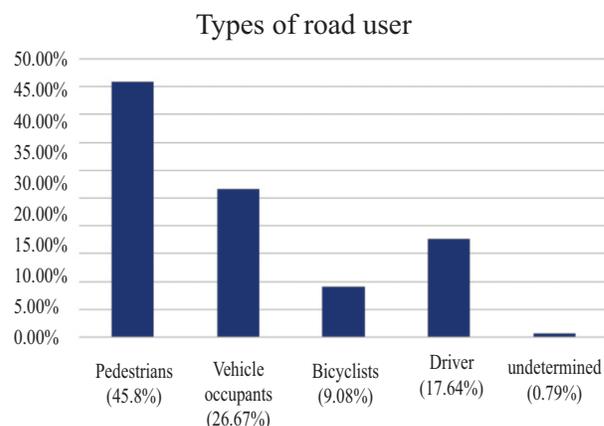


Table 3: Distribution of external injuries found in RTA victims on different parts of the body

| Part of the body | Abrasion | Bruise | Laceration | Total |
|-------------------|--------------|--------------|--------------|---------------|
| Head, neck & face | 960 (11.53%) | 943 (11.33%) | 887 (10.66%) | 2790 (33.53%) |
| Upper limbs | 972 (11.68%) | 209 (2.51%) | 197 (2.36%) | 1378 (16.56%) |
| Thorax | 807 (9.70%) | 189 (2.27%) | 207 (2.48%) | 1203 (14.46%) |
| Abdomen & pelvis | 262 (3.14%) | 129 (1.55%) | 212 (2.54%) | 603 (7.24%) |
| Lower limbs | 819 (9.84%) | 737 (8.85%) | 789 (9.48%) | 2345 (28.18%) |
| Total | 3820(45.91%) | 2207(26.52%) | 2292(27.55%) | 8319 (100%) |

Table 4: Distribution of fractures among RTA victims

| Part of the body | Number with Percentage % |
|------------------|--------------------------|
| Skull | 828 (20.41%) |
| Face | 717 (17.68%) |
| Spine | 94 (2.31%) |
| Thorax | 780 (19.23%) |
| Pelvis | 105 (2.58%) |
| Upper limbs | 729 (17.97%) |
| Lower limbs | 802 ((19.77%) |
| Total (%) | 4055 (100%) |

Table 5: Distribution of visceral injuries among the RTA victims

| Part of the body | Number with percentage % |
|-----------------------|--------------------------|
| Brain | 803 (24.73%) |
| Spine | 82 (2.52%) |
| Lungs | 679 (21.22%) |
| Heart & Great vessels | 652 (20.08%) |
| Liver | 201 (6.19%) |
| Spleen | 184 (5.66%) |
| Kidneys | 176 (5.42%) |
| Stomach | 188 (5.79%) |
| Intestine | 164 (5.05%) |
| Diaphragm | 107 (3.29%) |
| Total (%) | 3246 (100%) |

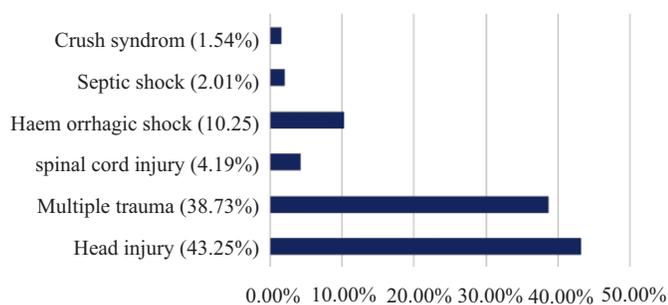


Figure 3: Distribution of RTA victims in relation to cause of death

Discussion

During the three year study period we observed the total of 1882 cases of road traffic accidents out of the total 8500 medico-legal autopsies done at Sir Salimullah Medical College Mortuary from 01.01.2014 to 31.12.2016.

Maximum cases were from the age group 20-29 years i.e 476 cases (25.29%) followed by the age group >60 years i.e 347 cases (18.43%), 10-19 years 312 cases (16.57%), 40-49 years 231 cases (12.27%), 50-59 years 209 cases (11.10%), 30-39 years 202 cases (10.73%) and 0-9 years 105 cases accounting for 5.57% of the total 1882 cases of RTA. Similar study was done in India which shows most of the victims of RTA were from the age group 30-39 years 26 cases (26.53%) followed by the age group 50-59 years 17 cases (17.34%), > 60 years 16 cases (16.32%), 20-29 years and 40-49 years 13 cases (13.26%) respectively, 10-19 years 8 cases (8.16%) and 0-9 years 5 cases comprising 5.10% of the total 98 cases of RTA victims¹².

Majority of the victims were male i.e 1452 cases (77.15%) and we observed 430 female victims comprising 22.84% of the total 1882 cases. Similar findings were observed in an Indian study where out of 98 victims of RTA there were 74 male victims (75.51%) and 24 female victims comprising 24.48%¹².

Pedestrians were the prime victims i.e 862 cases (45.80%) followed by vehicle occupants 502 cases (26.67%), Drivers 332 cases (17.64%), Bicyclists 171 cases (9.08%) and 15 victims were undetermined comprising 0.79% of the total. Similar study was done in India which revealed pedestrians were the commonest victim i.e 880 cases (47.00%) followed by vehicular occupants 517 cases (27.61%), drivers 266 cases (14.20%), bicyclists 196 cases (10.47%) and undetermined 13 cases comprising 0.69% of the total 1872 cases of RTA¹³.

In relation to distribution of external injuries we observed 2790 injuries (33.53%) over head, neck & face (960 abrasions+943 contusions+887 lacerations) followed by lower limbs 2345 cases i.e 28.18% (819 abrasions+737 contusions+789 lacerations), upper limbs 1378 cases i.e 16.56% (972 abrasions+209 contusions+197 lacerations), thorax 1203 cases i.e 14.46% (807 abrasions+189 contusions+207 lacerations), abdomen & pelvis 603 cases i.e 7.24% (262 abrasions+129 contusions+212 lacerations).. In total we observed 8319 visible external injuries out of the total 1882 victims of RTA. Similar Indian study revealed head, neck & facial injury 122 (32.44%) followed by upper limb injury 79 (21.01%), lower limb injury 74 cases (19.68%), thoracic injury 55 (14.62%), and (abdominal

+pelvic) injury 46 cases out of the 376 external injuries of which total RTA victims were 98 in number¹².

In connection with bony fractures we observed most of the fractures in the skull bone i.e 828 cases (20.41%), lower limbs in 802 cases (19.77%), thorax in 780 cases (19.23%), upper limbs 729 cases (17.97%), face 717 cases (17.68%), pelvis 105 cases (2.58%) and spinal fractures in 94 cases comprising 2.31% of the total. We observed the total of 4055 fractures out of the total 1882 RTA victims. Similar Indian study shows skull fracture 59 (29.64%), thoracic fracture 39 (19.59%), lower limb fracture 32 (16.08%), upper limb fracture 31 (15.57%), facial fracture 24 (12.06%), spinal and pelvic fracture 7 each comprising 3.51% of the total 199 fractures found among 98 victims of RTA¹².

In relation to visceral injuries we observed injury to the brain in 803 cases (24.73%) followed by lung injury in 689 cases (21.22%), heart & great vessel injury in 652 cases (20.08%), liver injury in 201 cases (6.19%), stomach injury in 188 cases (5.79%), spleen injury in 184 cases (5.66%), Kidney injury in 176 cases (5.42%), intestinal injury in 164 cases (5.05%), diaphragmatic injury in 107 cases (3.29%) and spinal cord injury in 82 cases comprising 2.52% of the total 3246 (100%) visceral injuries among the total 1882 RTA victims. Similar Indian study shows injury to the brain in 78 cases (38.61%), lungs in 25 cases (12.37%), liver in 24 cases (11.88%), heart & great vessels in 16 cases (7.92%), intestine in 14 cases (6.93%), spleen in 12 cases (5.94%), spinal cord in 7 cases (3.46%), stomach in 5 cases (2.47%) and diaphragm in 4 cases comprising 1.98% of the total 202 visceral injuries¹².

Most of the RTA victims died due to head injury i.e in 814 cases (43.25%) followed by multiple trauma 729 cases (38.73%), haemorrhagic shock 193 cases (10.25%), spinal cord injury 79 cases (4.19%), septic shock 38 cases (2.01%) and crush syndrome 29 cases comprising 1.54% of the total 1882 cases. Similar Indian study also revealed majority of the victims died due to head injury in 46 cases (46.93%) followed by polytrauma in 34 cases (34.69%), haemorrhagic shock in 14 cases (14.28%), spinal cord injury and complications 2 cases each comprising 2.04% of the total 98 cases of RTA victims¹².

Conclusion

An autopsy is an integral component to establish the cause and nature of death. This study has documented the increased trend of RTA fatalities in relation to demographic pattern from 2014 to 2016. It has displayed the age and gender variation and the possible risk factors involved in

RTA. Vehicular accidents have continued to be a threatening factor, incurring great loss of valuable man-power each year. Unsafe driving practices such as high speed driving, avoid using helmets and seat belts while driving or using mobile phones while crossing roads are very common among young drivers. Strict re-enforcement of traffic rules, road safety regulations and improvisation of emergency medical services altogether can prevent death and disabilities caused by vehicular accidents. Public awareness campaign concerning tragic ends of most valuable human lives, safety rules targeted at the high risk group and the maintenance of good road condition should be kept continued. Further studies concerning road traffic accidents should be encouraged in the upcoming future days.

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Relation between *Chlamydia pneumoniae* infection and mild to moderate hypertension

Tahera Khanom¹, Syeda Rafiqen Nessa², Mohammad Sohel Showkath³, Sarker Hafiz Mahmud⁴, Taslima Akter Shumi⁵

Abstract

Introduction: *Chlamydia pneumoniae* was first described in 1986. Serological studies indicate that it is one of the most prevalent infectious agents worldwide, with a wide range of clinical manifestations, including exacerbations of chronic obstructive pulmonary disease and chronic asthma. Several groups have demonstrated serological associations with coronary artery disease, 7±10 strokes and transient cerebral ischemia, and asymptomatic carotid atherosclerosis. Our study was designed to test the association of this organism with HT in sylhet MAG Osmani Medical College hospital, Sylhet. **Materials and Methods:** This was a cross sectional descriptive and comparative study conducted in the Department of Microbiology, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh during the period from January 2013 to December 2013. For this purpose 49 patients with history of hypertension and 51 age-sex matched subjects without history of hypertension were selected according to inclusion and exclusion criteria and categorized as case group (group-A) and control group (group-B) respectively. **Result :** Distribution of patients by seroprevalence of IgG anti-Chlamydia antibody. In hypertension group 27 (56.0%) patients were positive for IgG anti-Chlamydia antibody; while in non hypertensive group 29 (57.0%) patients were positive for IgG anti-Chlamydia antibody. There was no significant association of seropositivity of IgG anti-Chlamydia antibody between two groups (p=0.859). **Conclusion:** These data does not support the associations of mild to moderate hypertension with previous *Chlamydia pneumoniae* infection.

Key Ward: *Chlamydia pneumoniae*, hypertension, anti-Chlamydia antibody

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Introduction

Chlamydia pneumoniae is an obligate intracellular Gram-negative bacterium that infects humans as a respiratory pathogen. It has a biphasic life-cycle, existing as either an EB ('elementary body') or a RB ('reticulate body'). The EB is the extracellular infectious non-replicating form which, when internalized by a susceptible cell, differentiates into the metabolically active RB. The RB replicates, by binary fission, forming an intracellular microcolony (inclusion) and then re-differentiates, after 48–72 h, back into EB forms, which are released from the infected cell to begin another infection cycle. Under certain conditions, RBs do not re-differentiate directly into EBs, but form interim non-replicating 'persistent bodies', allowing the bacterium to maintain a chronic latent infection¹. Exposure to *Chlamydia pneumoniae* is common, with 50% of individuals seropositive by 20 years of age and approximately 80% by 80 years of age².

Chlamydia pneumoniae generally causes mild upper respiratory tract infections, which range in severity from

asymptomatic disease to, occasionally, severe pneumonia. *Chlamydia pneumoniae* has been estimated to account for 10% of community-acquired pneumonia and 5% of pharyngitis, bronchitis and sinusitis³, and because it can maintain a chronic or latent infection, recurrence of the disease is frequent, despite treatment with antibiotics. A link between vascular disease and infection with other chlamydial species was suggested in the 1940s and 1960s and, with the isolation of *Chlamydia pneumoniae* from the respiratory tract in 1983, it was speculated that this bacterium may also play a role in cardiovascular disease⁴.

Hypertension exemplifies probably better than any other disorder the complexity of polygenic disease. In 95% of cases, no single cause can be identified; although factors such as consumption of alcohol and caffeine, salt intake, smoking, obesity, and physical inactivity may clearly contribute to increasing blood pressure. The notion that infections may predispose to hypertension is not new. For example, such a role has been proposed for *Helicobacter pylori*: of 33 patients in one urban general practice with unequivocal *H. pylori* gastritis, 42% had sustained hypertension compared with 12% of dyspeptic patients

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without *H. pylori*⁵. Schreiber et. al. reported that intravenous injections of either live or heat-killed group B -hemolytic streptococci in newborn lambs caused significant dose-dependent increases in systemic vascular resistance and mean systemic arterial pressure and that these effects were partly blocked by leukotriene D4 receptor antagonists, suggesting that leukotrienes might mediate hypertension in this infection⁶. This is one of several immunologic changes that might be relevant to the infectious origin of essential hypertension. Furthermore, chronic chlamydial infections have a marked propensity to cause fibrosis (as seen, for example, in the cicatricial scarring of the cornea that characterizes trachoma and in fibrosis of the Fallopian tubes in pelvic inflammatory disease due to *C. trachomatis*). It is therefore reasonable to speculate that *C. pneumoniae* within vascular endothelial cells might, by a similar process, lead to an increase in vascular resistance. There are wide variations in the prevalence and incidence of hypertension in different parts of the world. Both in the United Kingdom and United States, it is more common among black people than in the white population. *C. pneumoniae* antibodies have been associated with Afro-Caribbean origin, raising the possibility that a genetic predisposition to this infection may contribute to the development of hypertension⁷.

Chlamydia pneumoniae was first described in 1986. Serological studies indicate that it is one of the most prevalent infectious agents worldwide, with a wide range of clinical manifestations, including exacerbations of chronic obstructive pulmonary disease and chronic asthma.⁶ Several groups have demonstrated serological associations with coronary artery disease, strokes and transient cerebral ischemia, and asymptomatic carotid atherosclerosis⁸. Our study was designed to test the association of this organism with HT in sylhet MAG Osmani Medical College Hospital, Sylhet. We subjected the patients with mild to moderate hypertension according to their history of hypertension as well as their history of taking hypertensive drug.

Materials and Methods

This was a cross sectional descriptive and comparative study conducted in the Department of Microbiology, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh during the period from January 2013 to December 2013. For this purpose 49 patients with history of hypertension and 51 age-sex matched subjects without history of hypertension were selected according to inclusion and exclusion criteria and categorized as case group (group-A) and control group

(group-B) respectively. Inclusion criteria includes patients with history of hypertension for at least 1 year or more, Any age irrespective of sex and age and sex matched subjects having normal blood pressure. Immunoglobulin G (IgG) antibodies against *Chlamydia pneumoniae* was tested using the DIA pro *Chlamydia pneumoniae* enzyme-linked immunosorbent assay (Milan, Italy) according to manufacturer's instructions.

Study procedure

After explaining the purpose of the study written informed consent was taken. All patients with mild to moderate hypertension were evaluated. The clinical histories of the patients were noted. Each patient was examined thoroughly. General demographic details, smoking habits and past medical history such as diabetes mellitus and hypertension; past and family history of ischemic heart disease or any other disease was recorded.

Hypertension was Documented by, History of hypertension diagnosed and treated with medication, diet or exercise and Blood pressure >140 mmHg systolic and or >90 mmHg diastolic on at least 2 occasions by palpatory method (inflate the cuff rapidly to 70 mm of Hg. And increase by 10 mmHg, increments while palpating the radial pulse. Level of pressure noted at which the pulse disappears and subsequently reappears during deflation is systolic blood pressure). Also those patient who was on anti-hypertensive pharmacological therapy was included in our study.

Estimation of serum *Chlamydia pneumoniae* IgG antibody

Immunoglobulin G (IgG) antibodies against *Chlamydia pneumoniae* was tested using the DIA pro *Chlamydia pneumoniae* enzyme-linked immunosorbent assay (Milan, Italy) according to manufacturer's instructions. Serum samples were be diluted and then incubated with the highly purified *C. pneumoniae* outer membrane protein antigens coated in the microwells with negative and positive controls. After washing, the bounded IgGs were further complexed with antihuman IgG antibodies labeled with HRP. A substrate solution was used reacting with HRP to produce color correlating with the presence of anti-*Chlamydia pneumoniae* IgG in the sample. The results were determined by calculating an index value from optical density values relative to control materials. An index of ≥ 0.9 was considered reactive, and <0.9 was considered negative. Seropositivity was defined as the presence of either IgG antibodies.

Results

This was a cross sectional descriptive and comparative study conducted in the Department of Microbiology, Sylhet MAG Osmani Medical College, Sylhet, Bangladesh during the period from January 2013 to December 2013 with a view to evaluate association between IgG anti C pneumoniae antibody and mild to moderate hypertension. For this purpose 49 patients with mild to moderate hypertension were selected according to inclusion and exclusion criteria and categorized as case group (group-A). Age and sex matched 51 subjects without hypertension were also selected and categorized as control group (group-B). The outcome of the study was as follows:

Table 1 Showed the age of the patients ranged from 32 to 70 years with the mean age of 49.35 (SD \pm 8.53) years in hypertension group (group A); whereas the age ranged from 31 to 70 years with the mean age of 47.28 (SD \pm 9.49) years in without hypertension group. The mean age of the patients in both groups was almost similar (p=0.686)

In table-2 shows the frequency distribution of patients according to sex. There were 41(84.0%) male and 8 (16.0%) female in hypertension group; whereas 38 (74.0%) male and 13 (26.0%) female in patients without hypertension group. The sex of the patients of hypertension group and without hypertension group did not show any statistically significant difference (p=0.261).

In group-A, 23 (48.0%) patients were smoker and 26 (52.0%) patients were non-smoker; whereas in group-B, 22(42.0%) patients were smoker and 29 (58.0%) patients was non-smoker. There was no significant difference of smoking status between the groups (p=0.702). Distribution of patients by smoking status is shown in table-3.

Table-4 showed the distribution of patients by seroprevalence of IgG anti-Chlamydia antibody. In hypertension group 27 (56.0%) patients were positive for IgG anti-Chlamydia antibody; while 29 (57.0%) patients were positive for IgG anti-Chlamydia antibody in without hypertension group. There was no significant association of seropositivity of IgG anti-Chlamydia antibody between two groups (p=0.859).

Table 1: Distribution of the patients on the basis of age

| Age in years | Study group | | p-value |
|--------------|----------------------|----------------------|----------|
| | Group-A (n=49) | Group-B (n=51) | |
| Mean (years) | 47.28(SD \pm 9.49) | 49.35(SD \pm 8.53) | *p=0.686 |

*X² test were employed to analyze the data.

Table 2: Distribution of the patients according to sex

| Sex | Study group | | Total | p=0.261 |
|--------|------------------------------|-----------------------------|-------|---------|
| | Group-A (n=49) Frequency (%) | Group-B(n=51) Frequency (%) | | |
| Male | 41 (84.0) | 38(74%) | 79* | |
| Female | 8 (16.0) | 13(26%) | 21* | |
| Total | 49 (100.0) | 51(100.0) | 100* | |

* χ^2 (Chi- square) test was employed to analyze the data.

Table 3: Distribution of patients by smoking status

| Smoking status | Study group | | *p-value |
|----------------|------------------------------|------------------------------|----------|
| | Group-A (n=49) Frequency (%) | Group-B (n=51) Frequency (%) | |
| Smoker | 23 (48.0) | 22 (42.0) | |
| Non-smoker | 26 (52.0) | 29 (58.0) | p=0.702 |
| Total | 49 (100.0) | 51 (100.0) | |

*Chi-square (χ^2) Test was employed to analyse the data

Table 4: Distribution of patients by seroprevalence of IgG anti-Chlamydia antibody

| IgG anti-Chlamydia antibody | Study group | | Odd ratio (95% CI) | p-value |
|-----------------------------|----------------|----------------|--------------------|---------|
| | Group-A (n=50) | Group-B (n=50) | | |
| Positive | 28 (56.0) | 16 (32.0) | 2.71 | |
| Negative | 22 (44.0) | 34 (68.0) | (1.20-6.11) | p=0.016 |
| Total | 50 (100.0) | 50 (100.0) | | |

* χ^2 (Chi- square) test was employed to analyze the data.

Discussion

There are wide variations in the prevalence and incidence of hypertension in different parts of the world. Both in the United Kingdom and United States, it is more common among black people than in the white population. C. pneumoniae antibodies have been associated with Afro-Caribbean origin, raising the possibility that a genetic predisposition to this infection may contribute to the development of hypertension⁹. In a large Finnish study that showed a clear association of high titers of chlamydial IgG and IgA antibodies with chronic coronary artery disease and acute myocardial infarction, there was no correlation with other risk factors for these conditions, including

hypertension¹⁰.

The authors of the Finnish study did not specify the criteria for diagnosing hypertension in their report, but another study by Cook, et al. of chronic severe hypertensive patients have detected such an association. They found of the matched HT patients, 43 (35.0%) had serological evidence of previous infection, 9 (7.3%) acute (re)infection, and 71 (57.7%) no infection. Of the matched control subjects, 22 (17.9%) had evidence of previous infection, 11 (8.9%) acute (re)infection, and 90 (73.2%) none. Regression analysis suggested associations of HT with previous *C. pneumoniae* infection (OR, 2.5; 95% confidence interval [CI], 1.3 to 4.7) but not with acute (re)infection (OR, 1.0; 95% CI, 0.4 to 2.6)¹¹.

In our study we found distribution of patients by seroprevalence of IgG anti-Chlamydia antibody. In hypertension group 27 (56.0%) patients were positive for IgG anti-Chlamydia antibody; while 29 (57.0%) patients were positive for IgG anti-Chlamydia antibody in non-hypertension group. There was no significant association of seropositivity of IgG anti-Chlamydia antibody between two groups ($p=0.859$). These data does not support the associations of mild to moderate hypertension with previous *Chlamydia pneumoniae* infection. Future clinical studies will be necessary to define the importance of this risk across a range of populations.

Conclusion

Among These data does not support the associations of mild to moderate hypertension with previous *Chlamydia pneumoniae* infection. For the past 20 years, numerous studies have evaluated the role and importance of *Chlamydia pneumoniae* in cardio vascular risk factors, but it is a major challenge to either prove or disprove a causal role for a common agent in a highly prevalent disease. In view of important limitations in study design and execution, these results cannot rule out an important pathogenic role. Considering the totality of present evidence, *Chlamydia pneumoniae* is neither alone sufficient nor is it necessary to cause cardio vascular events or its clinical consequences in humans. However, *Chlamydia pneumoniae* is highly likely to be a modifiable risk factor that may be amenable to future therapies focused on either eradication (antibiotic therapy or early immunization) or modifying the vascular inflammatory response to infection. Future clinical studies will be necessary to define the importance of this risk across a range of populations.

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Prevalence of non alcoholic fatty liver disease and its biochemical parameter

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Abstract

Background: Nonalcoholic fatty liver disease (NAFLD) has been emerging as the most common chronic liver condition in the world and is a clinicopathologic entity increasingly recognized as a major health burden in developed countries. Different laboratory tests are extremely useful in achieving a better understanding of diseases, and thereby, allow making decision for better management. The examination of different biochemical parameters usually provides excellent clues to the cause of the disease. **Objective:** To see the prevalence of non-alcoholic fatty liver disease and its biochemical predictors. **Material and Methods:** An observational study was carried out in the Department of Biochemistry, Army Medical College, Comilla during the period of January 2017 to June 2017. The main outcome variable are prevalence of NAFLD and its biochemical marker: ALT, AST, TG, total cholesterol, LDL and HDL in a patient with non alcoholic fatty liver disease. Ultrasonography of hepatobiliary system was done to all patients to find out fatty change in the liver, ALT, AST, Total cholesterol, TG, HDL, LDL was done. **Results:** This study showed the prevalence of non alcoholic fatty liver disease (NAFLD) was 32.6%. The findings of all biochemical parameters were raised in NAFLD patients in comparison with nonfatty liver group and the differences were found to be statistically ($P < 0.05$) significant. As it is shown, the mean + SD of serum ALT (IU/L) were 60.1+24.1 and 42.7+21.4 were significantly higher in NAFLD patients as compared to non fatty liver disease ALT (19.61+5.91) and AST (24.57+5.52). All the lipid profile parameters (mg/dl) total cholesterol (201.36+50.29, triglyceride (TG) (199.62+63.36) and LDL (119.12+39.80) were significantly higher in NAFLD patients as compared to non-NAFLD group total cholesterol (164.42+35.56), TG (153.12+19.50) and LDL(119.12+39.80). Paradoxically higher HDL (38.29+6.32 vs 44.64+28.84) was seen on non-NAFLD group. **Conclusions:** NAFLD is associated with changes in biochemical parameters in cases of NAFLD. It also highlights the importance of routine lipid profile in subjects should be more closely observed for NAFLD and liver complications.

Key word : Non alcoholic fatty liver, disease, biochemical, chronic liver

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For Authors Affiliation, see and of text.

<https://www.amccomilla.edu.bd/jamcu>

Introduction

Non alcoholic fatty liver disease (NAFLD) is a type of chronic liver disorder which is gaining significant importance worldwide. NAFLD represents spectrum of conditions characterized histologically by macrovesicular hepatic steatosis and occurs in those who do not consume alcohol in amounts generally considered to be harmful to the liver¹. It is considered as the most common chronic liver disease in affluent societies, affecting 2-10% of the general population, encompassing a wide range of diseases from simple steatosis to nonalcoholic steatohepatitis (NASH) in both children and adults^{1,2}. The

liver cell damage that is observed in patients with NASH can lead to cirrhosis or even end-stage liver disease^{3,4}. Absence of sign and symptoms, and non availability of sensitive and specific diagnostic tests, limits the ability to estimate the prevalence of NAFLD^{3,4}.

It has also been observed that with modernization, a sedentary lifestyle and a lack of exercise are tied in with an increased prevalence of diabetes mellitus (DM), obesity, hypertension and hypertriglyceridemia. These are considered to be important causes of nonalcoholic fatty liver disease (NAFLD). In the majority of patients, NAFLD is associated with metabolic risk factors such as obesity, diabetes mellitus, and dyslipidemia. Approximately 20-25% of the cases progress into cirrhosis with all its ramifications

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including hepatocellular carcinoma and the need for liver transplantation^{1,4}.

Biochemical tests are extremely useful for accomplishing a better understanding of the disease, and thereby allows thought full management decisions to be made. An ultrasound examination of the liver has relatively high sensitivity (60-95%) and specificity (88-95%)⁵. Therefore, the diagnosis of NAFLD has been made on liver ultrasound examination and the measurement of different biochemical parameters indicating liver injury or damage. Conflating the results into various scores may fortify the diagnosis⁶. However, researchers are still looking for simple diagnostic tools with greater sensitivity and specificity that could serve as a screening test for excessive fat accumulation in the liver. The data indicate that NAFLD may have male preponderance or an equal gender distribution and may even occur in the absence of diabetes and obesity⁷. NAFLD can occur at all ages including childhood, though the highest prevalence is described in those between 40-50 years of age. With some limitations, both population and hospital-based studies from the west report that around 10-24 percent ecumenical population (Guatemala) and 57-75 percent obese individual may have NAFLD⁸. Thus, in view of the above contest, the present study was under taken to see the prevalence of non-alcoholic fatty liver disease and its biochemical predictors in Bangladeshi population.

Materials and Methods

An observational study was carried out in the Department of Biochemistry, Army Medical College, Comilla during the period of January 2017 to June 2017. Nonalcoholic Fatty Liver Disease was diagnosed by noninvasive imagining liver ultrasound procedure. In addition, blood tests were performed to assess liver function and to exclude other causes of liver disease. The exclusion of significant alcohol intake was essential. Presence of abnormal fat accumulation in the liver found by X-rays and ultrasound images confirmed the diagnosis. Data were collected by interview of the patients / attendants; clinical examination and laboratory investigation. All data will be entered, checked, rechecked and scrutinized by the principal investigator for following standard procedure and will be analyzed by SPSS software Program version 20.

Result

In table I, the mean±SD of age is 44.8±7 years, BMI is 27.45±2.69 Kg/m², waist hip ratio is 0.905±0.845, In table II, sex distribution among study population (n=46) is male 56.5% and female 43.5%. Where as prevalence of fatty liver distribution among study population (n=46) is fatty liver 32.6% and non fatty liver 67.4% (Table-III). The finding of all biochemical parameters were raised in NAFLD patients in comparison with non fatty liver group and the differences were found to be statistically significant (P< 0.05) As it is shown, in the table IV and V.

Table I: Anthropometrics in study group (n=46)

| Anthropometric | Mean±SD |
|--------------------------|-------------|
| Age (years) | 44.8±7 |
| BMI (Kg/m ²) | 27.45±2.69 |
| Waist hip ratio | 0.905±0.845 |

Table II: Sex distribution among the study population (n=46)

| Sex distribution | Number | Percentage(%) |
|------------------|--------|---------------|
| Male | 26 | 56.5 |
| Female | 20 | 43.5 |

Table III: Prevalence of Fatty liver in study populations on ultrasound (n=46)

| USG | Number | Percentage(%) |
|-----------------|--------|---------------|
| Fatty liver | 15 | 32.6 |
| Non fatty liver | 31 | 67.4 |

Table IV: Variations of liver enzymes among study populations (n=46)

| Liver Enzymes | Fatty liver disease (n=15) Mean±SD | No fatty liver disease (n=31) Mean±SD | df | t | P value |
|---------------|------------------------------------|---------------------------------------|-------|-------|---------|
| ALT (IU/L) | 60.11±24.1 | 19.61±5.91 | 14.49 | 7.257 | 0.001 |
| AST (IU/L) | 42.75±21.4 | 24.57±5.52 | 14.69 | 5.149 | 0.001 |

Table V: Lipid profile in population of this study (n=46)

| Lipid Profile | Fatty liver disease (n=15) Mean±SD | No fatty liver disease (n=31) Mean±SD | df | t | P value |
|---------------|---------------------------------------|------------------------------------------|--------|-------|---------|
| TC (mg/dL) | 201.36±50.29 | 164.42±35.56 | 20.36 | 3.423 | 0.001 |
| TG (mg/dL) | 199.62±63.36 | 153.12±19.50 | 15.18 | 4.515 | 0.001 |
| HDL (mg/dL) | 38.29±6.32 | 44.46±7.64 | 34.864 | 3.31 | 0.001 |
| LDL (mg/dL) | 119.12±39.80 | 89.64±28.84 | 20.87 | 3.45 | 0.001 |

n= number of patients,

s= significant

ns=not significant

d=degree of freedom

p value <0.05 at level of significance

Discussion

NAFLD, which is characterised by a wide spectrum of liver pathology ranging from mere liver steatosis to the more severe non-alcoholic steatohepatitis, resembles alcohol-induced liver disease, but develops in subjects who are not alcohol consumers and have negative tests for viral and autoimmune liver diseases^{9,10}. The prevalence of fatty liver varies from 10 to 20%⁶. In the present study, increased body weight, BMI and waist measurement were more prevalent in patients with NAFLD. BMI was significantly higher non alcoholic fatty liver disease. Obesity is the most common entity associated with NAFLD that has been reported in studies¹¹.

In this study, NAFLD was diagnosed using ultrasonography the prevalence was 32.6%. Although the gold standard for diagnosing of NAFLD is magnetic resonance imaging,¹² many studies have suggested that ultrasonography is a useful, safe, noninvasive, and widely available method for diagnosis and follow-up of patients with NAFLD, especially in epidemiological studies^{13,14}. Hence, in this study, we used this assay for diagnosis of NAFLD and for improving its accuracy a single radiologist had performed the procedure.

The reported prevalence rate of ultrasonographically diagnosed NAFLD in different studies and regions had a wide range of variability. The reported range of NAFLD varies from 20% to 60% in developed countries and from 1% to 30% in developing and Asian countries^{15,16}. Prevalence of

NAFLD has reported to be 34%, 21.8%, 10%, and 24.3% in the United States, Japan, China, and South Korea, respectively^{17,18,19,20}. Several studies have demonstrated the prevalence of NAFLD in different groups of the Iranian population^{21,22,23}. The range was from 2.9% by Rogha *et al.*²¹ to 43.8% in a substudy from Amol cohort health study by Amirkalali *et al.*²⁴

Although NAFLD has emerged as the commonest liver problem worldwide and is found in up to one-third of the general population^{9,10} there is little information on the true profile of patients with NAFLD in clinical practice. It has been well established that many biochemical abnormalities occur in chronic liver diseases. A number of studies have shown that NAFLD patients have significant increase in TG, total cholesterol, VLDL and LDL cholesterol, where as decreased HDL was noticed. Similarly deranged AST, ALT and ALP were observed in greater percentages in patients of NAFLD than those without NAFLD. The results of our study also support these observations. As is seen, increase in all the above mentioned biomarkers, which can be very important in treatment aspect.

In this study the mean±SD of serum ALT (IU/L) were 60.1+24.1 and 42.7+21.4 were significantly higher in NAFLD patients as compared to non fatty liver disease ALT (19.61+5.91) and AST (24.57+5.52) values were found than controls and the variances between them were shows significant (P<0.005) values. All the lipid profile parameters (mg/dl) total cholesterol (201.36+50.29, triglyceride (TG) (199.62+63.36) and LDL (119.12+39.80) were significantly higher in NAFLD patients as compared to non-NAFLD group total cholesterol (164.42+35.56), TG (153.12+19.50) and LDL(119.12+39.80). Paradoxically higher HDL (38.29+6.32 vs 44.64+28.84) was seen on non-NAFLD group. Bajaj *et al.*¹² had also reported that the subjects with NAFLD had significantly higher values of total cholesterol and serum triglycerides. Increased lipid profile among NAFLD subjects had been reported in many studies. Clark *et al.*²⁵ in USA in a cross-sectional study found that NAFLD subjects were higher in high triglycerides levels. In another cross sectional study in Brazil, subjects with NAFLD had a higher triglyceride²⁶. However, Lizardi- Cervera *et al.*²⁷ in Mexico found that the high level of cholesterol was found in

63 percent of the NAFLD subjects. Similar findings were found also by other researchers^{28,29}. Many studies during the recent years revealed that liver enzymes including AST and ALT can be useful to detect or predict NAFLD and its grading, but due to the high variability of liver enzymes, it does not seem that these enzymes have a definite role in the accurate diagnosis of fatty liver. Obika also showed that liver enzymes do not appear to have any association with diagnose of NAFLD³⁰.

Conclusion

We conclude that, NAFLD is commonly seen in patients, and its prevalence is likely to increase with the rising incidence of obesity. The independently associated risk factors for NAFLD are the raised BMI, waist/hip ratio, as well as higher levels of liver enzymes. Serum triglyceride and serum cholesterol levels are significantly raised in NAFLD patients than in non fatty liver patients. The high prevalence of severe derangements also highlights the importance of performing routine serum triglycerides and cholesterol level and other liver function tests for monitoring in patients. NAFLD should be actively required to treat and should also be monitored for complications.

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Comparative study of quality of subarachnoid blocks for caesarean section by using bupivacaine alone & bupivacaine-fentanyl combination

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Abstract

Background: The popularity of subarachnoid block (SAB) in cesarean section in recent times is due to better understanding of the physiological changes associated with it and proper appreciation of its advantages & complications. Hyperbaric bupivacaine in adequate dose (12mg or more) for SAB often causes complications like hypotension, shivering, nausea, vomiting, chest pain & epigastric pain. This study is conducted by department of anesthesia, Eastern medical college and Hospital over last one year from January to December 2017. **Objectives:** The aim of study is to reduce these complications by using bupivacaine-fentanyl combination. **Methods:** It was a clinical experimental study. 100 patients of ASA grade I & II waiting for cesarean section under SAB were randomly allocated in to two equal groups. Group A: Received 0.5% hyperbaric bupivacaine-10mg (2ml), Group B: Received 0.5% hyperbaric bupivacaine-8mg (1.6ml) & fentanyl-15ug[0.3ml] Parametric data like pulse, blood pressure, other complication like chest discomfort, epigastric pain, nausea, vomiting were analyzed or recorded. **Results:** In this study we found better analgesia & quality of block in bupivacaine-fentanyl group than bupivacaine alone group ($p<.001$). **Conclusion:** By adding fentanyl we can reduce the dose of bupivacaine & also improve the quality of block and reduce the dose of bupivacaine and therefore its harmful effects.

Key words: subarachnoid block, bupivacaine-fentanyl combination, quality of block.

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<https://www.amccomilla.edu.bd/jamcu>

Introduction

Spinal anesthesia is the preferred means for cesarean section being simple to perform, economical and produces rapid onset of anesthesia and complete muscle relaxation. It carries high efficiency, involves less drug doses, minimal neonatal depression, awake mother and lesser incidences of aspiration pneumonitis. However, it also produces a fixed duration of anesthesia, postdural puncture headache, hypotension and lesser control of block height¹ bupivacaine, an amide type of local anesthetic, has high potency, rapid onset (3-8 min) and long duration of action (1.5 to 2 hours). For cesarean section intrathecal dose of hyperbaric bupivacaine is 10 to 15 mg². Cesarean delivery requires traction of peritoneum and handling of intraperitoneal organs, resulting in intraoperative visceral pain. With higher doses of hyperbaric bupivacaine, incidence of intraoperative visceral pain associated with higher blocks is reduced³ if motor blockade extending to the

roots of the phrenic nerves (c3 – c5) causes apnea⁴. But intraoperative common complications of SAB like hypotension, shivering, nausea, vomiting, chest pain and epigastric pain are common when using bupivacaine alone in this dose. The addition of intrathecal fentanyl 10-20 microgram may reduce the dose of bupivacaine & there by reducing the intraoperative complications. Bogra et al showed that fentanyl as adjunct of local anesthetics in SAB in various doses has effects on following parameters - visceral pain, hemodynamic stability, intraoperative sedation, intraoperative & postoperative shivering & postoperative pain. They also showed that, fentanyl is able to reduce the dose of bupivacaine & therefore its harmful effects⁵. In view of these points discussed above, the current study is intended to make a comparison of quality of block with different small doses of bupivacaine along with fentanyl and various complications occurring intraoperatively during cesarean section under SAB.

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Methods

After taking informed written consent 100 healthy women with term pregnancy, aged between 20-35 years, height between 150-157.5cm, ASA I & II undergoing elective cesarean section under SAB were randomly allocated into two equal groups by simple lottery method. None of the patients had any contraindication for spinal anaesthesia. Complicated pregnancies such as multiple pregnancies, pregnancy induced hypertension and placenta previa were excluded. Foetal and maternal distress patients were also excluded from the study.

Group A: Received 0.5% hyperbaric bupivacaine 10mg(2ml)

Group B: Received 0.5% hyperbaric bupivacaine-8mg (1.6ml) & fentanyl- 15 microgram (0.3ml).

No premedication was given. SAB was done in lateral decubitus and sitting position at L3-L4 interspace using 25G Quincke spinal needle in each patient. Drugs were injected as per allocated schedule. Then the patients were turned supine position with a wedge under right buttock & 4L/min O₂ by face mask was started. Heart rate, blood pressure & oxyhaemoglobin saturation were measured just after positioning the patient & was recorded continuously at 2 minutes interval from induction to 20 mins. & then at 5 min intervals upto the end of operation. After assuming the supine position, the upper level of block was evaluated. Sensory block was evaluated by using pinprick & chlorhexidin soaked swab by wiping it up to the abdomen, starting from inguinal region up to 4th intercostal space in midclavicular line. Hypotension was defined as a decrease in systolic arterial pressure below 90 mm Hg or 25% decrease from the base line and was treated with IV isotonic fluid & ephedrine 5mg incremental dose as required intraoperative sedation was used.

Each patient was asked a complete standard questionnaire regarding nausea, vomiting, chest pain, epigastric pain, pruritus. Shivering was treated by wrapping the patient with warm blanket & warmed IV fluid.

Results

There was no significant difference between groups in ages, parity & gravida. Regarding sensory block 74% in group A, 92% in group B was at the level of T₇. The level of sensory block was significantly ($p < 0.05$) higher in group B.

The incidence of nausea & vomiting was significantly ($p < 0.05$) higher in group A with compared to group B. There was no significant difference between 2 groups in other complications like shivering, chest heaviness, pruritus. But the level of satisfaction of patients was significantly ($p < 0.05$) higher in group B with compared to group A.

Table 1: Distribution of level of sensory block

| Level of Sensory Block | Group A (bupivacaine) (n = 50) | | Group B (bupivacaine-fentanyl) (n = 50) | | P Value |
|------------------------|--------------------------------|-------|-----------------------------------------|-------|---------|
| | n | % | n | % | |
| T6 | 10 | 20.0 | 0 | 0.0 | 0.35 |
| T7 | 37 | 74.0 | 46 | 92.0 | 0.02* |
| T8 | 3 | 6.0 | 4 | 8.0 | - |
| Total | 50 | 100.0 | 50 | 100.0 | |

* Statistical analysis was done by Chisquare test. Values were regarded as significant $P < .05$

The mean difference of pulse at different times was not statistically significant.

The mean differences of systolic & diastolic blood pressure, SpO₂, respiratory rate were not statistically significant.

Table 2: Distribution of Patients according to side effect

| Pain | Group A (bupivacaine) (n = 50) | | Group B (bupivacaine-fentanyl) (n = 50) | | P Value |
|-----------------|--------------------------------|------|-----------------------------------------|-----|-----------|
| | n | % | n | % | |
| Chest pain | 23 | 46.0 | 4 | 8.0 | 0.001 *** |
| Epigastric pain | 9 | 18.0 | 2 | 4.0 | 0.001 *** |

* Statistical analysis was done by chisquare test. Values were regard as significant $p < .05$

Chest pain & epigastric pain of the patients were very highly significant ($p < 0.001$) higher in group A with compared to group B.

Table 3: Distribution of patient's satisfaction level

| Satisfaction of patient | Group A (bupivacaine) (n = 50) | | Group B (bupivacaine-fentanyl) (n = 50) | | P Value |
|-------------------------|--------------------------------|-------|-----------------------------------------|-------|----------|
| | n | % | n | % | |
| Excellent | 17 | 34.0 | 40 | 80.0 | 0.010 ** |
| Good | 33 | 66.0 | 10 | 20.0 | - |
| Total | 50 | 100.0 | 50 | 100.0 | |

Statistical analysis was done by chisquare test. Values were regarded as significant $P < 0.05$

Discussion

Recent trends of obstetrics anesthesia show increased popularity of regional anesthesia amongst obstetric anesthetists. The increasing use of low dose technique of local anesthetics & opioids in recent years become popular for elective caesarean sections. Hyperbaric bupivacaine at 10mg or less has been shown to carry a risk of inadequate block. For this reason most of the anesthesiologists have favoured the use of higher doses (12mg or more) to overcome the incomplete blocks during caesarean section.⁶ But higher dose itself has some complications. Bogra et al in 2005 showed that fentanyl as adjunct of local anesthetics in SAB in various doses has effects on following parameters - visceral pain, hemodynamic stability, intraoperative sedation, intraoperative & postoperative shivering & postoperative pain. They also showed that fentanyl is able to reduce the dose of bupivacaine & its harmful effects⁶. This randomized prospective study was carried out with an objective to compare the incidence of intraoperative complications in caesarean section under spinal anesthesia with bupivacaine alone & the addition of fentanyl with bupivacaine. Regarding the quality of block addition of fentanyl to hyperbaric bupivacaine significantly improved of intraoperative surgical anesthesia for caesarean section. In this study we have found complete analgesia & quality of block were better in bupivacaine - fentanyl group than bupivacaine only group. In our study the level of sensory block was up to T₇ in majority such as 74% in group A, 92% in group B. The level of sensory block T₇ was significantly (p<0.05) higher in group B with compared to group A whereas T₆ level was not significant between group A and group B. Although ideally T₄ level of block is required for caesarean sections, but in our study the level of analgesia achieved is T₆ which is sufficient for caesarean section. In this study, there were no significant difference among two groups regarding haemodynamic parameters, SpO₂ and respiratory rate. Comparing of equipotent doses of bupivacaine alone & bupivacaine fentanyl combination, we found no significant change after four, six, eight & ten minutes. Bogra et al. also have found that intraoperative hypotension increases with increasing the doses of bupivacaine along with fentanyl. In our study we used smaller dose of fentanyl in subarachnoid space thereby producing no effect on APGAR score of newborn babies in group B. Dahlgren et al has also showed that, use of the smallest

effective opioid dose minimize potentially adverse maternal & neonatal risks⁷. Chest pain was very highly significant (p<0.001) in group A (46%) compared to group B (8.0%). Palmer CM et al. proved that 47.3% patients developed symptoms of chest pain during cesarean delivery under regional anesthesia & electrocardiographic changes occurred⁸. The changes were suggestive of myocardial ischemia. No patient without electrocardiographic change developed symptoms of chest pain. Incidence of chest pain was similar to our study. But we did not monitor ECG changes of the patients. In same way, epigastric pain was found 18% in group A & a few was found in group B. Caesarean section required traction of peritoneum & handling of intraperitoneal organs resulting in intraoperative visceral pain. In our study time appearance of epigastric pain during operation was correlated with the time of peritoneal closing. Most probably this visceral pain might be expressed by patients as epigastric pain. In this study, nausea & vomiting was significantly (p<0.05) higher in group A with compared to group B. Jaishri et al² also reported that incidence of vomiting was more in bupivacaine alone group than fentanyl combination group. Nausea & vomiting have multiple etiologies, which include hypotension, vagal hyperactivity, visceral pain, I/V opioid supplementation, uterotonic agents & increased gut motility. In our study all groups were haemodynamically stable. Despite achieving an adequate sensory level nausea during manipulation of the uterus & at the time of peritoneal closure was sometimes a problem in the present study group A. Christer Hulstrand et al. have shown beneficial effects of adding various opioids to the local anesthetic solution administered intrathecally. Subarachnoid opioids successfully decrease the incidence of intraoperative visceral pain. In our study incidence of nausea & vomiting was negligible in group B. Chest heaviness was highly significant (p<0.001) in group A compared to group B. Alone lower concentration of Bupivacaine could not completely removed the visceral pain. Incidence of nausea, vomiting and shivering reduces significantly by using this combination. Postoperative pain relief and pruritus, maternal respiratory depression and changes in APGAR score of babies did not occur with this combination⁹. Incidence of intraoperative complications (like chest pain, epigastric pain, nausea - vomiting) during elective caesarean section under SAB in mentioned and in our study are same. We can minimize the intraoperative complication by reducing the

dose of bupivacaine and adding small dose of fentanyl (15ug)

Conclusion

We can routinely use fentanyl in combination with bupivacaine intrathecally to improve the quality of subarachnoid block and reduces the dose of bupivacaine and therefore its harmful effects.

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Comparing Principle-oriented and Information-oriented Educational Approach towards Human Genetics: A Profile of Selected Textbooks

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Abstract

Back ground: Genetics is the study of inherited traits and their variations. It directly affects our lives, as well as those of our relatives, including our descendants. To diagnose a disease of inheritance the knowledge of Genetics is essential for a physician today. When the problem is within the gene of a patient then the goal of the treatment should obviously be the correction of the mutated gene. But the subject 'Genetics' being a very complex one, it is often difficult for the medical students to develop a proper understanding of it. So it requires developing an acceptable way for the students to get the subject easily by heart. It is assumed that learning process may be facilitated by structuring it around general stable rules or 'principles' of the subject rather than trying to memorise plenty of apparently disconnected information both at the 'knowledge' and the 'skills' levels. For achieving this goal, an appropriate analysis is in warrant. **Objectives:** To Identify the approaches taken regarding the use of 'principle' and 'information' in presenting Genetics through texts and illustrations in the textbooks. **Method:** The present study was a cross-sectional type of descriptive study with qualitative and quantitative component was done in the Department of Anatomy, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. **Analytical materials:** Two selected textbooks on Genetics. **Main Outcome Measures:** Textbooks on Genetics were analysed to estimate the relative proportions of 'sentences and illustrations presenting primarily Principle-oriented text and aspect' and 'sentences and illustrations presenting primarily Information-oriented text and aspect'. **Results:** In the Genetics textbooks those were analysed, the mean percentage (\pm SD) of the 'sentences presenting primarily Principle-oriented text' and the mean percentage (\pm SD) of 'Illustrations are having Principle-oriented aspect' were within 38-46%. **Conclusion:** This study has produced a basic profile of the 'Principle-Information' issue in the teaching-learning and assessment of Genetics in terms of the presentation patterns of textbooks. Analyses through this thesis work noticed the reflections of 'Principle oriented approaches' in Genetics textbooks. This result will provide baseline understanding on which further studies can be designed and preliminary decisions can be made in developing and implementing a 'Principle-oriented curriculum for postgraduate Genetics.

Key Words: Principle, Information, Text, Illustration

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Introduction:

Genetics is the branch of science concerned with genes, heredity, and variation in living organisms. Genetic disorders differ from other areas of medicine in that it so often involves families, rather than only individuals. The patients are often healthy, but concerned about the risk of developing or transmitting a disorder. According to Skirton et al.¹ as an understanding of the effect of gene variation on the complex or common diseases increases, knowledge of Genetics is needed by health professionals to practice. The specific genes that seem to contribute to specific disorders, the practitioner must understand and be able to explain to patients—which of these reports have clinical significance and which are merely unsubstantiated claims. To achieve the goal of gaining

adequate knowledge on Genetics the field of education has to be focused. We know that it is quite difficult to understand Genetics properly being a complex subject. Erickson² pointed out, 'At times, teachers express a concern over the tension between a heavy curriculum load and the time to teach for deeper conceptual understanding and the transfer of knowledge'. We must have to go through an acceptable and easy way to make it understandable because students are more likely to enjoy learning when they are able to be successful; they are more likely to be successful if they are learning in a way that is natural to them. Brady³ stated 'what students need is a "master" organizer— a mental filing system or map they understand— that displays the general layout of the mind and its system for integrating knowledge'. Today's challenge for medical educators is to provide continuing education that supports excellence in clinical

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practice while finding new approaches to make learning more stimulating, motivating, and entertaining⁴. Here, a way that can be helpful for learning Genetics is “generalisation” which means taking one or a few facts and making a broader, more universal statement. Here the concept considered for generalisation is termed as “principle” and the fields to which it is applicable are termed as “information”. When student learns to analyse information they are able to gain a deeper understanding of ideas. Brain research has shown that information in our brain is organised in schematic structures. These structures are made up of interconnected bits of information and serve as a framework for the knowledge we require. When a learner's knowledge is connected it is much more likely that they will apply the prior knowledge to a wide variety of new situations. They will acquire new information in a way that is more accessible and will be better able to relate it to previously acquired knowledge.

Materials and Methods

This was a cross-sectional type of descriptive study with qualitative and quantitative component carried out on two Genetics textbooks where all chapters with its relevant parts were considered by excluding specific parts using defined exclusion criteria. Then the total number of sentences and illustrations of each textbook were counted. Then the 'sentences presenting primarily Principle-oriented text' and 'sentences presenting only Information-oriented text' and 'illustrations having Principle-oriented aspect' and 'illustrations having only Information-oriented aspect' in each textbook were identified and counted separately. Then the percentages of the above types of sentences among all the sentences and illustrations among all the illustrations in each textbook were estimated. Then the means of the percentages in the two textbooks were calculated. The textbooks on Genetics were selected are:

1. Emery's Elements of Medical Genetics: Text and Atlas edited by Peter Turnpenny and Sian Ellard, 14th edition, 2012, Elsevier Churchill Livingstone, Philadelphia.
2. Human Genetics: Concepts and Applications by Ricki Lewis, 9th edition, 2009, McGraw-Hill Primis, United States of America.

Results

In the present study, the analysed portions of the textbook Lewis (2009) have 7550 sentences and those of Turnpenny and Ellard (2012) have 6250 sentences. Table III shows the

percentages of the 'sentences presenting primarily Principle-oriented text' and 'sentences presenting primarily Information-oriented text' of the two Genetics textbooks analysed. The mean percentage of 'sentences presenting primarily Principle-oriented text' of the two textbooks is 38%. Figures 3 and 4 present the percentages of 'sentences presenting primarily Principle-oriented text' and 'sentences presenting only Information-oriented text' in specific portions under different headings/ sub-headings of the Genetics textbooks analysed. It revealed that under all the headings/ subheadings of the two Genetics textbooks, the 'sentences presenting primarily Principle-oriented text' out proportion the 'sentences presenting primarily Information-oriented text' most noticeably for the chromosome, cells and cell divisions and genetic counseling topics. On the other hand, the sentences presenting primarily Information-oriented text' out proportioned by the 'sentences presenting primarily Principle-oriented text' most noticeably for the genetic disorders, testing and treatment topics. A total number of 336 illustrations were analysed from the textbook, Lewis (2009) and 315 illustrations were analysed from the textbook, Turnpenny and Ellard (2012). The relative proportions of the 'illustrations having Principle-oriented aspect' and 'illustrations having only Information-oriented aspect' of the two selected Genetics textbooks as shown in Table IV and Figure 5 and Figure 6 shows relative Proportions of 'illustrations having Principle-oriented aspect' and 'illustrations having only Information-oriented aspect' in specific portions of different headings/ sub-headings of the Genetics textbooks. The mean percentage of 'illustrations having primarily Principle-oriented aspect' of the two

Table I: Showing examples of 'sentences presenting primarily Principle-oriented text'

| Chapter | Example |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The History and Impact of Genetics in Medicine | The law of segregation refers to the observation that each person possesses two genes for a particular characteristic, only one of which can be transmitted at any one time. |
| The Cellular and Molecular Basis of Inheritance | Within each cell of the body, visible with the light microscope, is the cytoplasm and a darkly staining body, the nucleus, the latter containing the hereditary material in the form of chromosomes. |
| Chromosomes and Cell Division | The tip of each chromosome arm is known as the telomere. |

Table II: Showing examples of 'sentences presenting primarily Information-oriented text'

| Chapter | Example |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The History and Impact of Genetics in Medicine | The history of genetics in relation to medicine is one of breathtaking discovery from which patients and families already benefit hugely, but in the future success will be measured by ongoing progress in translating discoveries into both treatment and prevention of disease. |
| The Cellular and Molecular Basis of Inheritance | In 1953, Watson and Crick, based on x-ray diffraction studies by themselves and others, proposed a structure for the DNA molecule that fulfilled all the essential requirements. |
| Chromosomes and Cell Division | The word <i>chromosome</i> is derived from the Greek <i>chroma</i> (= color) and <i>soma</i> (= body). |

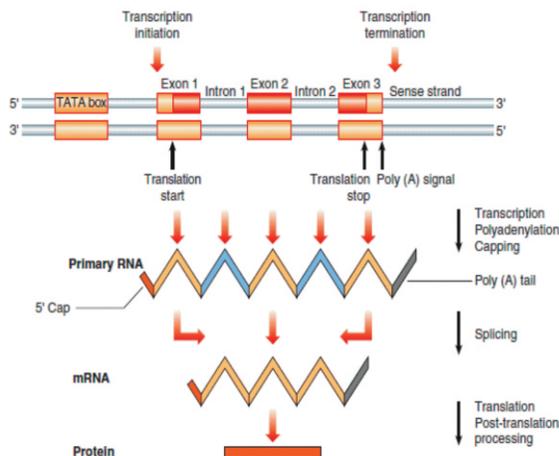


FIGURE 2.8 Transcription, post-transcriptional processing, translation, and post-translational processing.

Figure 1: An 'illustration having Principle-oriented aspect'. The diagram shows protein synthesis. Sources: Turnpenny and Ellard (2012), p. 15;



Figure 2: An 'illustrations having only Information-oriented aspect'. The diagram shows features of scleroderma a delayed immune response and is not applicable to any other fields. Sources: Lewis (2009), p. 34

Table III: Percentages of 'sentences presenting primarily Principle- oriented text' and 'sentences presenting primarily Information- oriented text' in the specific portions of two selected Genetics textbooks

| Sl no. | Category of sentence | Percentage in individual textbook | | Mean percentages in the two textbooks ±SD |
|--------|----------------------------------------------------------|-----------------------------------|------------------------------------|-------------------------------------------|
| | | Lewis (2009) n=7550 | Turnpenny and Ellard (2012) n=6204 | |
| 1 | Sentences presenting primarily Principle-oriented text | 36% | 40% | 38.00±2.82 |
| 2 | Sentences presenting primarily Information-oriented text | 64% | 60% | 62.00±2.82 |

n: No. of text analysed

Headings/subheadings

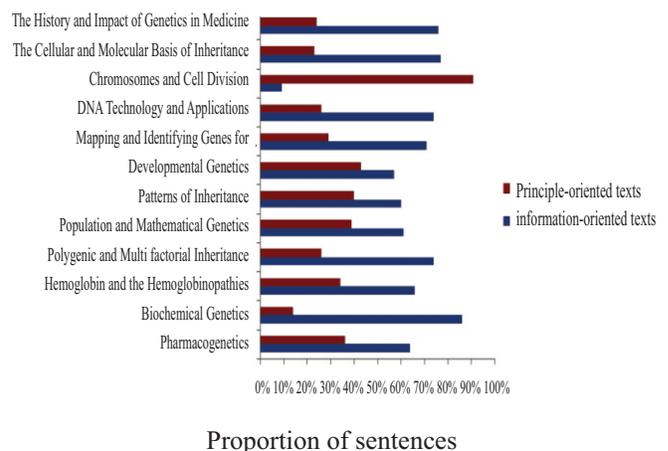


Figure 3 : Percentages of 'sentences presenting primarily Principle-oriented text' and 'sentences presenting primarily Information- oriented text' in specific portions of the Genetics textbook by Turnpenny and Ellard (2012)

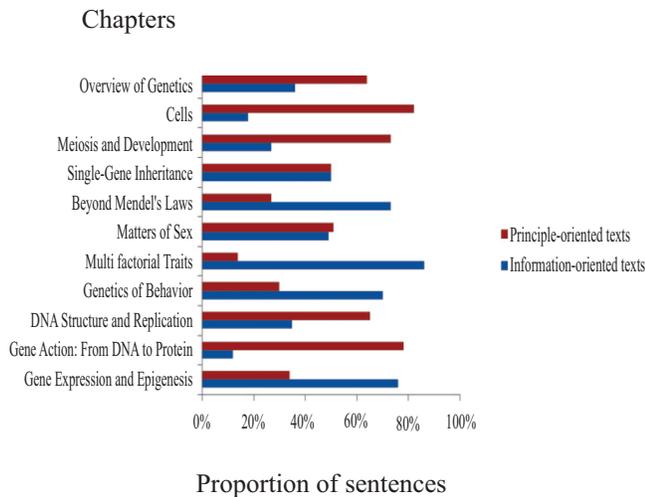


Figure 4: Percentages of 'sentences presenting primarily Principle-oriented text' and 'sentences presenting primarily Information-oriented text' in specific portions of the Genetics textbook by Lewis (2009).

Table IV: Percentages of 'illustrations having Principle-oriented aspect' and 'illustrations having only Information-oriented aspect' in the specific portions of two selected Genetics textbooks

| Sl no. | Category of sentence | Percentage in individual textbook | | Mean percentages in the two textbooks ±SD |
|--------|-------------------------------------------------------|-----------------------------------|-----------------------------|-------------------------------------------|
| | | Lewis (2009) | Turnpenny and Ellard (2012) | |
| | | n=336 | n=315 | |
| 1 | Illustrations having Principle-oriented aspect | 56.55% | 34.92% | 45.73±15.29% |
| 2 | Illustrations having only Information-oriented aspect | 43.45% | 65.08% | 54.26±15.29% |

n: No. of illustrations analysed

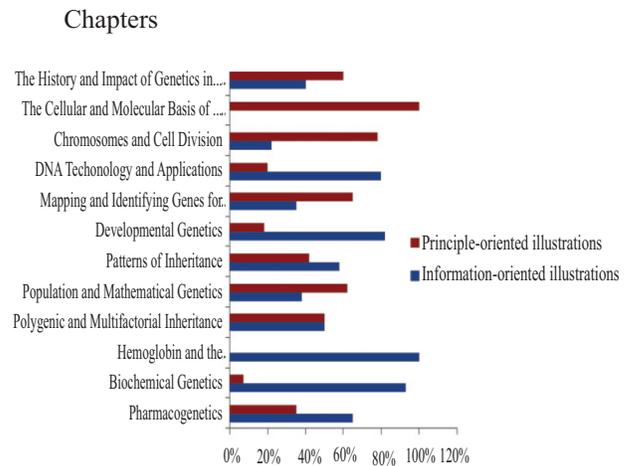


Figure 5: Percentages of 'illustrations having Principle-oriented aspect' and 'illustrations having Information-oriented aspect' in specific portions of the Genetics textbook by Turnpenny and Ellard (2012)

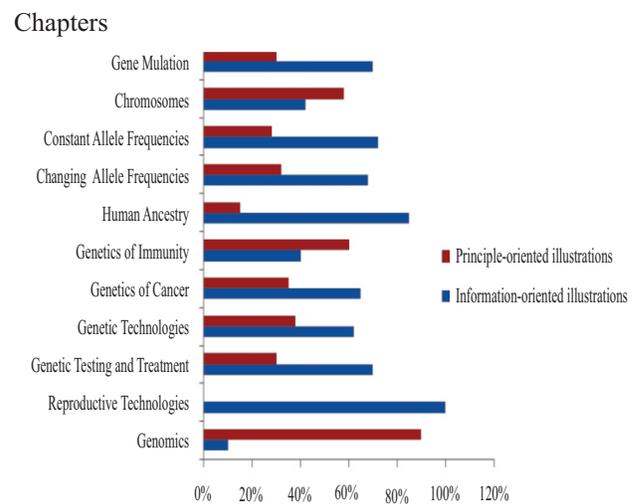


Figure 6: Percentages of 'illustrations having Principle-oriented aspect' and 'illustrations having Information-oriented aspect' in specific portions of the Genetics textbook by Lewis (2009) under different chapters.

Discussion

Textbooks and ancillary materials will remain an instrument of extraordinary power. They may, in fact, be the most effective of educational technologies yet invented, and there is no reason to imagine a modern educational system where textbooks do not play a central role. It is therefore fitting and proper to pay close attention to their role and function and their content⁵.

Textbooks figure into challenge of improving understanding and transfer of knowledge to learners. In a textbook an author can be balanced in different ways depending on the age, ability and experience of the reader and on the importance of topic. The way of presentation of information in a textbook can make all kind of learning effective. To improve memory, have to improve understanding, and to enrich understanding, we must have to increase the utilisation of 'Principle-oriented approach' in textbooks.

The present study revealed that the two Genetics textbooks analysed had an average of around 38% of the sentences 'presenting primarily Principle-oriented text'. Analyses of the illustrations on the two Genetics textbooks showed that a mean of about 46% of them had 'Principle-oriented aspect'.

Through literature search no such study could be detected on Genetics, but in the Department of Anatomy (BSMMU) several similar studies have been done on other subdivisions of Anatomy. These are in Neuroanatomy⁶, in Cell and Histology⁷ and in General and Regional Anatomy⁸. All these researchers worked on two selected textbooks and their studies showed the mean percentages of 'sentences presenting primarily Principle-oriented text' as about 25%, 42% and 81% respectively in the three studies the mean percentages of such illustrations were around 27%, 47% and 84% respectively. These differences between the anatomical subdivisions may be due to differences between the subjects in their nature (including visual nature) and/ or the approaches taken by the textbooks. Besides this another fact that might have influenced the variation of the findings is that Genetics is the subject which is newly approached in Anatomy. So it is taking time to develop 'Principle based approach' in Genetics. In the present study on Genetics textbooks, it is noted that, chapters dealing with chromosomes and cell division had the highest mean percentages of 'sentences presenting primarily Principle-oriented text' while the chapters dealing with genetic technology and genetic disorders carry least amount.

Wikiversity⁹ has mentioned that 'Principles' give us the understanding behind every procedure, and 'there is at least one principle which explains why it works'. Thus, Principle-oriented teaching-learning methods are likely to promote deep understanding. Deep understanding generally refers to

how concepts are represented in the students' mind and most importantly, how these concepts are connected to each other. Genetics is such a subject where there is necessity of plenty of 'Information' as well. Gutterman, Porteous and Melnerly¹⁰ argued that an important goal in educating health-care professionals in genomics is to enable them to understand and utilize genetic-based probability and risk assessment, and to communicate effectively about them. 'Principle' is necessary for understanding and memorisation and 'Information' is the knowledge that is the main target of a lesson. A balance between Principle and Information has to be maintained for proper understanding of the learning process. We need to develop assessment policies in Genetics of medical curriculum in Bangladesh.

Conclusion

Considering the experience gained from the present study, it may be suggested that one can design to compare the impact of 'Principle-oriented teaching' with that of 'Information-oriented teaching' on students learning of Genetics. An exercise-oriented study may be designed on how and how successfully the teachers decide to select 'Principles' from the contents of the Genetics textbooks for using in their teaching.

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Road traffic accident (RTA) is a common disaster in Bangladesh

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Abstract

Bangladesh is beset with many problems and the root cause of all problems is over-population. Road accident is one of them and now a days it has become national catastrophe or crisis for every citizen of the country. Everyday road accident is taking away enormous innocent lives ruthlessly. Whenever we turn over the newspaper pages everyday, we find such types of unexpected road crashes news. Day after day we are becoming helpless to the street accidents. Now it is the greatest concern for Bangladesh to reduce death tolls and injured people which are being occurred for sudden road accidents. It has even become dreadful to walk on the busiest roadside in the urban areas Bangladesh. There are many causes of road accidents in recent years; which increase during Eid & Puja vacation. The aim is to determine causes, responsibility and advocate preventive measures.

Key words: RTA, victim. developing world; Causes, prevention.

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Introduction

A road accident refers to any accident involving at least one road vehicle, occurring on a road open to public circulation, and in which at least one person is injured or killed. Intentional acts (murder, suicide) and natural disasters are excluded¹. Most factors involved in RTA are created or controlled by man. Man initiates the process that may yield a RTA by travelling. He or she may travel as a pedestrian, as a passenger in a vehicle or as the operator of a vehicle. To these extents, such a person bears some responsibility even if passively so as a passenger. A high proportion of accidents is directly blamable on man. In developing countries, road transportation is beset with a myriad of problems ranging from roads in dangerously poor conditions² through road-unworthy vehicles to drunken and uncaring drivers^{3,4} and pedestrians^{5,6}. Worldwide, the number of people killed in road traffic crashes is estimated to be 1.3 million, with another 50 million injured each year. More than 85 percent of these casualties and 96 percent of total child deaths, occur in low and middle income countries. Road traffic deaths are predicted to increase by 83 percent in low-income and middle-income countries (if no major action is taken) and to decrease by 27 percent in high-income countries over the next 20 years⁷.

At least 2,297 people were killed and 5,480 injured in road accidents in the last six months, 2018 a sharp rise in the death toll compared to the same period last year, said an organisation campaigning for safety in the transport sector. National Committee to Protect Shipping, Roads and

Railways (NCPSRR) in a report said casualties in road mishaps has increased by 18.35 percent and the number of accidents increased by 8.6 percent. The report was prepared on the basis of reports in 22 national and 10 regional dailies and eight online news portals and news agencies. The 2,297 victims, including 315 children and 292 women, were killed in 1,983 accidents between January and June 2018. Last year, a total of 1,941 people, including 261 children and 262 women, were killed and 4,794 injured in the first six months. Severe increases RTA in June month alone, 333 people were killed and 632 injured in 265 accidents in June 2018. Of them, 120 were killed in the last eight days that included Eid holydays. The number of deaths was 133 during eight days including the Eid holidays last year. Carrying people on trucks and roofs of buses caused deaths in many cases⁸ which was figure 1. It's a big alarming sign for all citizen of Bangladesh.

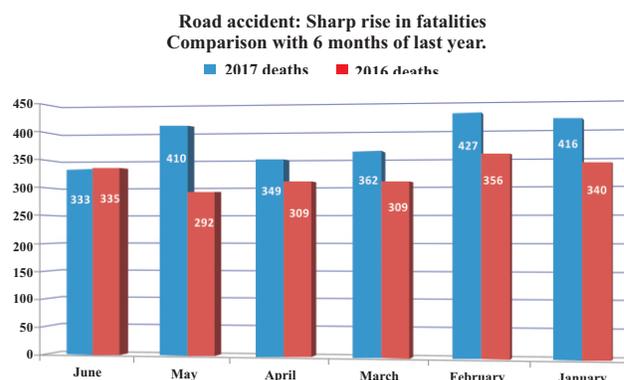


Figure 1: RTA Sharp rise in fatalities comparison with 6 months of last year.

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Causes of RTA & Discussion

No individual is responsible for causing road accidents singly. There are various reasons for occurring road crashes in Bangladesh

1. Defective Parts of Vehicle

As Bangladesh is a low income and several problematic country, it has more than 70% of defective vehicles running on the road that easily carry goods and passengers. It is dangerous for the country's people who are always travelling in these dangerous vehicles, can face death at any moment of time in their life. About approximately 30% of road accidents, occur for this reason. The vehicle owner do not willing to repair their vehicles on regularity basis as in our country there are rules but their (rules) enforcement is really absent. We divide or classify this cause into three further causes.

- Defective Brake & Steering
- Bad Quality Tires & faulty light
- Windshield Wiper Not Working

2. Driver

One of the major problems in Bangladesh is that a large percentage of drivers have had no training and are using forged licenses. These illiterate road drivers are unable to understand traffic rules and sign- syndrome of road traffic management. Much of these can be ascribed to the mal-practices involved in issuing licenses. There is no rigorous application of required standards of performance in granting driving licenses. A Bengali daily has drawn attention to the fact that about 90 percent of the driving licenses in Dhaka city are fake. This is perhaps one of the most important one of all causes. It is not only a question of poor driving and skill; it is more a question of reckless driving specially by the bus and truck drivers. On the highways, the bus and truck drivers are seen to be engaged in a deadly competition to overtake one another by accelerated speed. Depending on this cause we break down the causes as in follows-

- Tiredness & Illness
- Drunk & careless
- Disability
- Fake license & lack of proper training
- Excessive speed & failure to see Pedestrians
- Using mobile phone & adjusting radio while driving
- Loss of Control of Vehicle & driving in wrong ways.

3. Vehicle

Most of the buses and trucks of our country carry more than or sometimes double or triple of its capacity. This leads to

most of the accidents. Another concern of road accident is the rapid increase of the vehicle in our country. In 1990, the total number of mechanized vehicles on road was 221,526. In 2000, the number rose to 427,156. Thus the number almost doubled. The compound growth rate works out at about 7 percent. The types of mechanized vehicles include car, buses, micro-buses, truck, auto-rickshaw, jeep, taxi, tractor, motor cycle, trawler and others (BBS, 2000). Of these, the highest growth in percentage was in case of microbus (2,119%), followed by auto-rickshaw (200%), motor cycle (88%), car (80%) and truck (55%). The sub causes of the main cause vehicle are⁹

- Overload
- Rapid increase in the number of vehicle & Incorrect Maintenance of Vehicle.

4. Environment & Weather Condition

Bangladesh is a tropical country. Its three seasons namely Summer, Rainy and Winter are more prominent out of six seasons. Specially road accidents occur in Rainy and Winter seasons. In Rainy season roads are very slippery and wet on which drivers can not control the vehicle. With these slippery roads heavy winds add that create more dangerous situation for road accident. On the other hand in Winter season, the weather becomes more cloudy. In that situation drivers are not able to see the roads properly or other vehicles, pedestriains passing the road. The classifications of weather condition are-

- Rainy & heavy winds
- Cloudy

5. Road Condition

In the developing world context, the road is a major factor in RTA¹⁰. In Bangladesh there are no specific trends of repairing the roads. Most of the roads are cutting down or in under construction in Rainy season. It is also a matter of concern that a road may be cut for several times in a single year. Also the roads are not of sufficient span to pass the two vehicles at a time. Many of our roads do not have the cover of manholes that also creates accidents frequently. Broken roads, bending roads, one lane-road are common in our roads which make the roads more dangerous for driving. By considering these factors we classify our road condition as-

- Narrow Road & Defect in Roadway (hole)
- Under construction
- Poor road surface & wet or slippery due to rain/flood.
- Bend / winding roads & step hill
- Poor maintenance of road & one lane-road with divided carriageway.

6. Traffic System

Outside the city there are hardly found the traffic sign and signals. Also within the city most of the signals are either defective or not in use by both the traffic polices and drivers. But in our country, there is a little enforcement of the rules of the traffic system. Poor traffic management and enforcement are most visible in the streets of metropolitan areas. While much of it can be attributed to dereliction on the part of the traffic police, it is also true that vehicle drivers as well as pedestrians contribute in no small measure to road accidents. Most vehicles do not obey traffic signs or wish to be regulated. A vast majority of pedestrians do not like to use over-bridges or under-passes built at a huge cost to ensure their safety. The classification of the cause of traffic system are-

- Lack of sign & signal
- Poor traffic management & inadequate traffic police

7. Others

Mobile-phone use while driving

Between 70 – 80 % of RTAs (Road Traffic Accidents) occur on highways and rural roads. Up to 70% of road accidents are pedestrian alone. Inaccurate Speedometers are also a factor for road accident in Bangladesh.

- Measurement- inaccurate speedometer
- Pedestrian- carelessly crossing the road

In established democracies, victims of road traffic accidents have access to redress when factors responsible for an accident are identified^{11, 12}. Agencies that own uncovered manholes or drainage facilities are held accountable for mishaps that are traceable to their facility. With rapidly advancing frontiers of global democratization, trauma is expected to pose legal problems on responsibility and liability. Compensation claims are expected to rise with new interpretations and forensic analysis^{13,14}. Furthermore clinicians attending to RTA victims are exposed to litigation for alleged negligence^{15,16}. From the foregoing, liability for Road Traffic Accidents lies between man and government. On balance, developing world governments, being responsible for ensuring that vehicles that ply public roads meet certain minimum standards and being solely responsible for the construction and upkeep of roads, must accept the greater responsibility for the carnage on the roads.

Conclusion

Road traffic accidents RTA are a preventable scourge¹⁷. With man's invention of the wheel, the death knell has continued to

toll for many, who are often innocent, but who may happen to be at the wrong place at the wrong time. The global forecast has indicated that over the next 10 years developing countries like Bangladesh will experience an alarming increase in road accidents and casualties (but we are already facing the problem). Pedestrian-vehicle conflicts are clearly the greatest problem with significant involvement of trucks and buses. Children are highly vulnerable in the traffic situation compared with many other countries of the world. There is urgent need and scope for improving the road safety situation by implementing an effective and coordinated safety policy and actions which require significant improvements in relevant sectors viz. better enforcement, better roads (including the treatment of accident blackspots) and improved public education programmes with the introduction of newly-developed measures and approaches.

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Twin Pregnancy With Single Fetal Demise

Major Asma Rahman

Abstract

Twin pregnancy with single foetal demise poses risk of mortality and morbidity in the surviving twin. A multidisciplinary approach, counselling, emotional support and intensive foetal surveillance are mandatory. Here we reported a case of twin pregnancy with single fetal demise in a 21yrs aged woman presented at her 32 weeks of pregnancy diagnosed on ultrasound examination. Conservative management was given with intense fetal and maternal monitoring till 36 wks of pregnancy. Emergency LUCS was done at her 36+ wks pregnancy due to premature rupture of membrane. Patient delivered a healthy baby with fetus compressus.

Key words: Foetal demise, chorionicity, monochorionic, foetus compressus, foetus papyraceus.

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Introduction

Single foetal death in twin pregnancies is not rare; the reported incidence ranges from 0.5% to 6.8%¹. The risk of mortality and morbidity in the surviving twin is considerable^{3,4}. The death of one twin is also a shock to the parents and the attending obstetrician, who need to face the substantial foetal and maternal risks. A multidisciplinary approach, counselling, emotional support, and intensive foetal surveillance are mandatory.

Case Report

A 21-year-old female G2P1L1 attended to antenatal clinic of Combined Military Hospital Dhaka at her 32+ wks pregnancy for the first time with complaints of decreased foetal movements for 3 days and with ultrasound diagnosed twin pregnancy with single foetal demise. She had one previous LSCS with no antenatal and postnatal complications in previous pregnancy. According to patient's statement she was a regularly menstruating women. Her pregnancy was dated by early USG at 15 wks. It was her planned pregnancy but she was not on regular ANC. Her pregnancy was uneventful till 32 wks of pregnancy. She has no family history of twin or H/O taking ovulation induction drug. She has no h/o DM, HTN or thyroid disorder. On admission her all vital parameters were within normal limit. On abdominal examination SFH-34cm, FHS-146/min, FM+, leading twin was cephalic. Patient was treated with iron, calcium. Inj dexamethason doses were completed. Repeat USG with Doppler study done and found- monochorionic twin with single fetal demise, EFW-2 kg, AFI-adequate, FHS

present in one fetus. With all routine pregnancy investigation LFT, Serum creatinine, Serum uric acid, Coagulation profile were done. All are within normal limit. Decision was taken to continue pregnancy till 37 completed weeks or at least upto 34 wks with regular fetal and maternal monitoring. Maternal monitoring done by twice wkly CBC and coagulation profile, fetal monitoring by daily kick count, auscultation of fetal heart rate 3 times in a day, USG 2 wkly, NST wkly. Patient and fetal condition were normal till 36 wks. AT 36 wks 3 days pt noticed premature rupture of membrane and liquor was meconium stained, so emergency LUCS done in presence of child specialist. A healthy female baby of 2.75 kg was delivered. Placenta was single, Apgar score was 8/10, 10/10, 2nd twin was dead female foetus with no congenital anomalies weighing 1.3 kg. Both maternal and fetal post operative period was uneventful, so patient was discharged at her 4th POD with good health.

Discussion

Single foetal death in twin pregnancies is not rare, the reported incidence ranges from 0.5 to 6.8%¹. Single foetal demise can occur during any gestation. A reliable estimate of the incidence with reference to the timing is difficult². Single foetal demise in the first trimester seen as the vanishing phenomenon, which is relatively common and the prognosis for the surviving foetus is good³ and mother is most likely to develop mild vaginal cramping. In contrast, single foetal death in the second or third trimester is uncommon and has been shown to be associated with increased risk of mortality and morbidity for the surviving twin⁴, the dead twin may become either a foetus compressus or foetus papyraceus the

incidence of which is (0.54%⁵). The degree of compression depends on the time span between foetal death & delivery, the larger the foetus, the more difficult it is to become a foetus papyraceus². The causes of foetal death varied and included twin-twin transfusion, placental insufficiency, intrauterine growth retardation related to pre-eclampsia, velamentous insertion of the cord, cord sticture, cord around the neck and congenital anomalies⁶. Twin to Twin transfusion was found to be the common cause of fetal mortality⁷. In general, chorionicity rather than zygosity determines the risk of mortality and morbidity. Hence, it is important to determine the type of placentation by ultrasonography. The prevalence of monochorionicity in single intrauterine death in twins is 50% to 70%⁸. In dichorionic twins, the prognosis for the surviving twin is relatively good and immaturity is the main risk factor. In the cases of monochorionic twins, the prognosis is poor and associated with neurological damage in the survivor⁹. When fetal demise occurs after mid gestation there is a 77% chance that the "Surviving twin" in a monochorionic gestation will either die or suffer major morbidity¹⁰. The observed survival difference between dichorionic and monochorionic twins has been attributed to placental vascular anastomosis, which is rarely seen in dichorionic placentas. The reported frequency of vascular connections in monochorionic placentas ranges from 85% to 98%¹¹. The effects on the surviving twin include risks of neural tube defects, optic nerve hypoplasia, hypoxic ischemic lesions of the white matter (e.g. multicystic encephalomalacia), microcephaly (cerebral atrophy), hydranencephaly, porencephaly, haemorrhagic lesions of white matter, post haemorrhagic hydrocephalus, bilateral renal cortical necrosis, unilateral absence of a kidney, gastro intestinal tract atresia, gastroschisis, aplasia cutis affecting scalp, trunk or limbs and multiple organ infarctions may lead to severe disability in survivors and intrauterine or neonatal death¹². Death of one fetus can lead to ischemic brain damage of the other twin by causing sudden hypotension and hampering the blood supply to other twin. In diamniotic twins, death of one baby can cause sudden rupture of the thin membrane between them again leading to sudden hypotension and death of the other twin. Single foetal death causes release of fibrin and tissue thromboplastins in circulations causing DIC. Though it is a very uncommon complication, it can be fatal both for the mother and the fetus. Another adverse effect of death of one fetus is transchorionic embolization, leading to death of the other fetus also¹³. The most feared complication in mother is coagulopathy which

has been reported to occur in about 3-5 weeks following fetal demise. Romero et al¹⁴ who found the incidence of DIC to be 25%. Therefore, when fetal demise occurs after first trimester, an initial maternal clotting profile with reassessment in 2-3 weeks is not unreasonable¹⁴. Other maternal complications include preterm Labour, infection from a retained foetus, severe puerperal haemorrhage, consumption coagulopathy and obstruction of Labour by a Low lying foetus papyraceous causing dystocia leading to caesarean delivery¹⁵. With more frequent use of USG and CTG for surveillance, the death of one twin is more likely to be detected antenatally.

Recently, various biochemical markers have been implicated in diagnosing foetus papyraceous. Foetus papyraceous or vanishing twin has been shown to increase pregnancy associated plasma Protein A (PAPP-A) and free beta human chorionic gonadotropin (hCG) and Alpha-feto protein¹⁵. Antenatal death of one twin in late second or third trimester of a twin pregnancy poses an important management dilemma in obstetrics. In general, conservative management is advocated. True prevention of brain damage is possible only by inducing delivery before the vulnerable twin dies in utero. Killy et al¹⁷ suggested that the foetal outcome is mainly gestation dependant and the goal should be to prolong pregnancy¹⁷. Cattanacl et al¹⁸ favour conservative management until 37 weeks gestation, if foetal movements, cardiotocography and ultrasonography show no abnormality. Before that immediate delivery should be directed by obstetric indications. There is no specific contraindication to vaginal delivery. Single intrauterine death in twin is not an indication for caesarean section, unless there is evidence that the twins are monoamniotic with a 25% risk of cord entanglement¹⁸. It is recommended that all twin pregnancies with one dead foetus should be managed in tertiary referral centres with sufficient neonatal support. Fetal surveillance is required with ultrasound scans to detect foetal anomalies and assess foetal growth and liquor volume. Measurement of maximum pool depth of both sacs and with care taken to identify the dividing membrane and to ensure that each cord is studied separately. Rodis et al¹⁹ have advocated frequent ultrasound monitoring for dichorionic twin pregnancies at 4 weeks intervals, monochorionic twin pregnancies at 2-3 weeks intervals and more frequent assessments every 1-2 weeks if discordancy is diagnosed. These measurements are complemented by regular non-stress testing, biophysical profile and Doppler ultrasonographic studies (after 24 weeks), cranisonography

by the transvaginal route, may provide additional information. MRI is more sensitive than USG to detect ischemic brain injury in the early phase. It is recommended that a MRI brain of the surviving twin be performed at least two weeks after an intrauterine death of the co-twin to optimise the detection of any injury²⁰. Echoencephalography can detect antenatal necrosis of cerebral white matter as brain atrophy or cavities in the white matter by day 3 of life¹⁶. A through neonatal evaluation is indicated for the surviving twin to detect central nervous system, renal, circulatory and cutaneous defects. Investigations may include high resolution USG of the brain, computed tomography, renal functions studies and MRI. Long-term follow up is mandatory⁶.

Conclusion

The sequelae of a single fetal death in a twin pregnancy depend on the gestation and placentation. Death in the late second or third trimester is associated with significant morbidity and mortality in the surviving twin. Therefore, all twin pregnancies with one dead fetus should be managed in tertiary referral centers with sufficient neonatal support. A management plan should be individualized. Intensive fetal surveillance is required and the determination of chorionicity should be done early in the pregnancy. Proper care and management can salvage a good number of babies.

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