

Evaluation the Anesthesia Techniques for Reduction of Intraoperative and Postoperative Complications and Post-Operative Morbidity and Mortality Of Stroke Patients in ICU

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ABSTRACT

Objective: In this study our main objective is to evaluate anesthesia techniques for reductions in intraoperative and postoperative complications and post-operative morbidity and mortality of stroke patients in ICU.

Method: This Retrospective study was carried out at the Department of Surgery, tertiary care hospital, Dhaka from June 2017 to June 2018 where 120 patients who underwent different types of surgery were randomized to receive thoracic epidural analgesia along with general anaesthesia in Group-A (60 patients) and only GA in Group-B (60 patients) were included the study.

Results: During the study, most of the patients belong to 41-50 years age group for both Group A (47.78%) and group B (43.34%). Most of the patients in group A faced cardiac surgery and in group most of the patients faced neurologic surgery before stroke. Also, 89% of Group-A patients stay in ICU for 39-4 hours whereas Group B it was 11%.

Conclusion: From our results; we can say that, TEA in

combination with general anesthesia for surgery is comparatively safe rather than general anesthesia which reduces stroke development in patients. Further study is needed for better outcome.

Keyword: Thoracic Epidural Analgesia, General Anesthesia, Stroke.

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INTRODUCTION

In worldwide developed countries coronary heart disease and stroke are the first and second foremost cause of death correspondingly among adult men and women. Cardiovascular diseases killed 17.5 million people in 2012 that is 3 in every 10 deaths. Of these, 7.4 million people died of ischemic heart disease and 6.7 million from stroke. Though, the burden of stroke in developing countries has been increasing meaningfully. Twice as many deaths from stroke happen in developing countries as in developed countries. Generally in developing countries stroke ranks second or third in disease burden. By 2020 stroke is thought to be the important cause of death in developing countries. Deaths rates from stroke for people of <65 years have fallen by 23% in the last 10 years in developed countries but in developing country still it is remaining advanced. In the last 10 years a noteworthy increase in the life expectancy has occurred in developing countries like Bangladesh.^{1,2} In Bangladesh, stroke is the third leading cause of death (8.57%). Among the strokes 70-80% are

ischemic & 20-30% are hemorrhagic. During the surgery now a days over the use general anesthesia alone, thoracic epidural analgesia combinely used.³⁻⁵ In this study our main objective is to evaluate the anesthesia techniques for reductions in intraoperative and postoperative complications and post-operative morbidity and mortality of stroke patients in ICU.

OBJECTIVES

General Objective

- To estimate effectiveness of anesthesia techniques for reductions in intraoperative and postoperative complications and post-operative morbidity and mortality of stroke patients in ICU.

Specific Objective

- To detect types of surgery undergoes the patients before stroke.
- To identify mortality and morbidity rate of the patients.

METHODOLOGY

Type of Study

Retrospective study.

Place of Study

Tertiary care hospital, Dhaka.

Study Period

June 2017 to June 2018

Study Population

120 Patients admitted in the Department of Surgery, according to inclusion and exclusion criteria was included in the study.

Sampling Technique

Purposive

Inclusion Criteria

- Age -31 to >60 years.
- Gender- Both male and female.

Exclusion Criteria

- Patients aged below 31 years.
- Patients with Patients associated with valvular heart disease, congenital cardiac anomaly, urgent CABG and re-exploration, associated other systemic (e.g. hepatic, renal, COPD) were excluded from the study

Sample size

120 cases were included in this study.

Method

120 patients who underwent different types of surgery were randomized to receive thoracic epidural analgesia along with general anaesthesia in Group-A (60 patients) and only GA in Group-B (60 patients).On the arrival in the operation theater, intravenous cannulation and direct blood pressure monitoring using radial arterial catheterization will be established in both groups. As per the hospital policy all drugs used and events that occurred preoperatively were recorded manually and a copy of the preoperative assessment and anaesthesia notes written by the concerned authority were preserved.

We noted age, gender, type & pattern of operation during the experiment. Preoperative preparations like premedication, fasting and routine investigations such as CBC, platelet count, electrolytes, serum glucose, BUN, serum creatinine, PT, APTT, INR, liver function tests, urinalysis, ECG, chest radiograph and 2D Echocardiogram, 24 hours holter monitoring, coronary angiogram, details of anaesthesia management either general anesthesia or regional anesthesia or combined (general & regional) anesthesia, monitoring and the outcome were also recorded.

Statistical Analysis

The results are given as Mean ± SD for the seven independently performed experiments. Unpaired student's "t" test was used to see the level of significance. P value <0.05 was considered statistically significant. ANOVA test was used to see the level of significance among comparison more than two groups, p value < 0.05 was considered statistically significant.

Table 1: Age distributions of the patients.

Group	Group A %	Group B %
31-40	2.21%	6.66%
41-50	47.78%	43.34%
51-60	34%	37%
>60	16.01%	13%

Table 2: Socio demographic characteristics of the patients

Variable	Group A	Group B
Weight	69±9.0	62±9.1
Height	173±6.0	172±5.0
Educational Status		
Illiterate	6%	1%
Primary	12%	19%
Secondary	23%	21%
Graduate	59%	60%
Working status		
Service holder	32%	28%
Business Man	15%	11%
House wife	27%	25%
Others	26%	36%
Diabetic status of the patients		
Diabetic	60%	71%
Non diabetic	40%	29%
Operation status		
Elective	65%	52%
Emergency	35%	48%

Table 3: Intraoperative complication in the patients

Intraoperative complication	Group A	Group B
Pain	10%	12%
Reduced cardiac output	5%	10%
Lung trauma	13%	25%
Renal perfusion with spontaneous respiration.	9%	5%

Table 4: Types of surgery before stroke

Types of surgery patient's undergoes before stroke	Group A	Group B
General	3%	5
Orthopedic	9%	18%
Cardiac	48%	21%
Vascular	22%	8%
Neuropathy	18%	50%

Table 5: Total operation time in study population

Operation time	Group A	Group B
Mean±SD	295.0±19.0	285.5±16.6
	minutes	minutes

Table 6: X-ray chest P/A view of both groups of patients in preoperative period

X-ray chest P/A view	Group A	Group B
Pre Op. CXR (Normal)	32	31
Post-operative follow-up CXR Normal	25	23
Abnormal	3	6

Table 7: Total Hospital Stay in Days

Total hospital stay	Group A	Group B
6-10 days	92%	14%
11-15 days	8%	86%

RESULTS

In table-1 shows age distributions of the patients where most of the patients belong to 41-50 years age group for both Group A (47.78%) and group B (43.34%).

In figure-1 shows gender distributions of the patients. This study patient was divided into Group A and Group B, where in Group A (thoracic epidural analgesia along with general anaesthesia) 85% were male and 15% were female. In Group B (only general anaesthesia) 91% and 9% were male and female respectively.

In table-2 shows socio demographic characteristics of the patients where, in group A 60% patients were diabetic where as in group B it was 71%. In table-3 shows intraoperative complication in the patients where 13% patients in group A faced lung trauma where as in group B it was 25%. In table-4 shows types of surgery undergoes the patients before stroke where most of the patients in group A faced cardiac surgery and in group most of the patients faced neurologic surgery before stroke.

In figure-2 shows distribution of the patients according to types of stroke, where 75% patients had ischemic and 25% had hemorrhagic.

In table-5 shows total operation time in study population where total operation time in Group-A was 295.0±19.0 minutes and in Group-B was 285.5±16.6 minutes.

In figure-3 shows total ventilation time 6-12 hours in 85% Group-A and in group-B it was 89% respectively which was statistical significant (p<0.05).

In figure-4 shows total ICU Stay in hours of study population where 89% of Group-A patients stay in ICU for 39-4 hours whereas Group B it was 11%.

In table-6 shows X-ray chest P/A view of both groups of patients in preoperative period and was found not statistically significant. But on the postoperative follow-up periods there were significant difference found in both groups of patients.

In table-7 shows total hospital Stay in Days in study population where in group A total 92% patients stay in hospital 6-10 days where as group B it was 14%.

In figure-5 shows mortality and morbidity rate of the patients where in group A mortality rate was 19% where as in group B it was 26%.

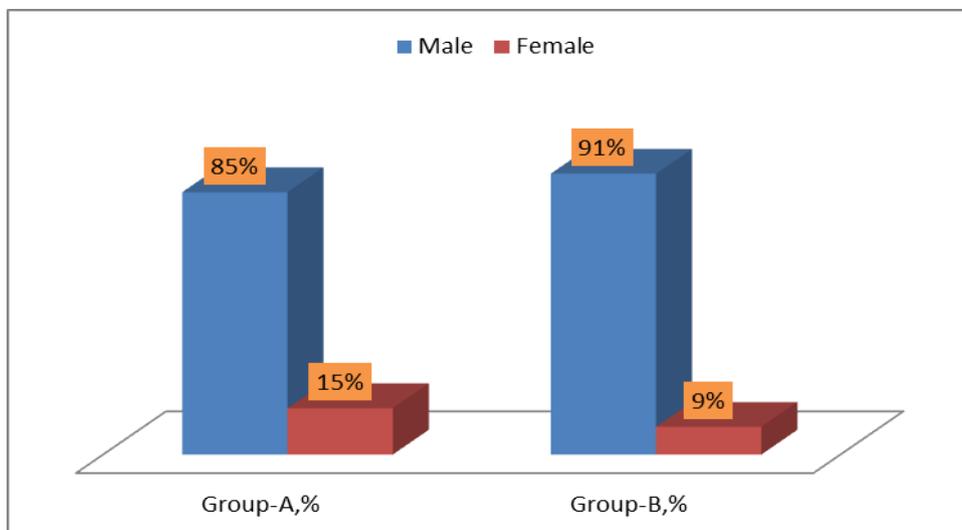


Figure 1: Gender distributions of the patients.

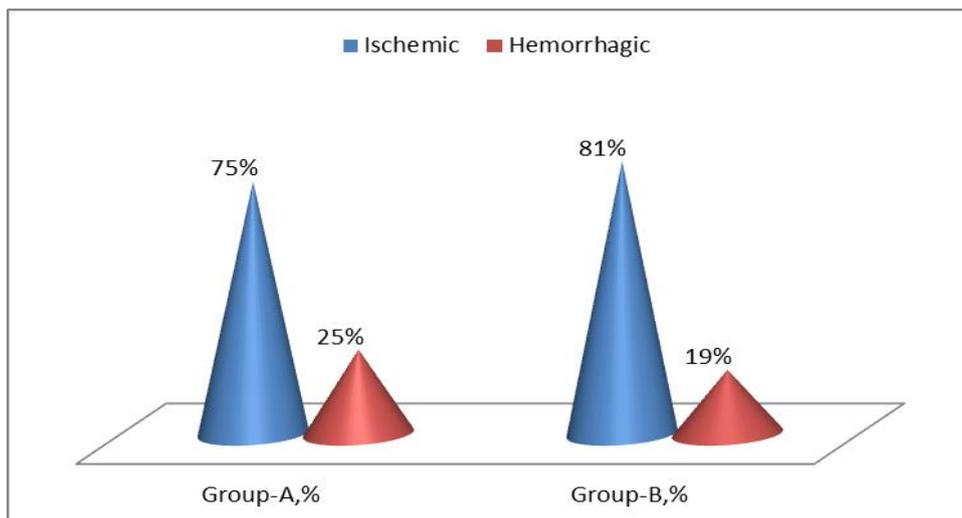


Figure 2: Distribution of the patients according to types of stroke

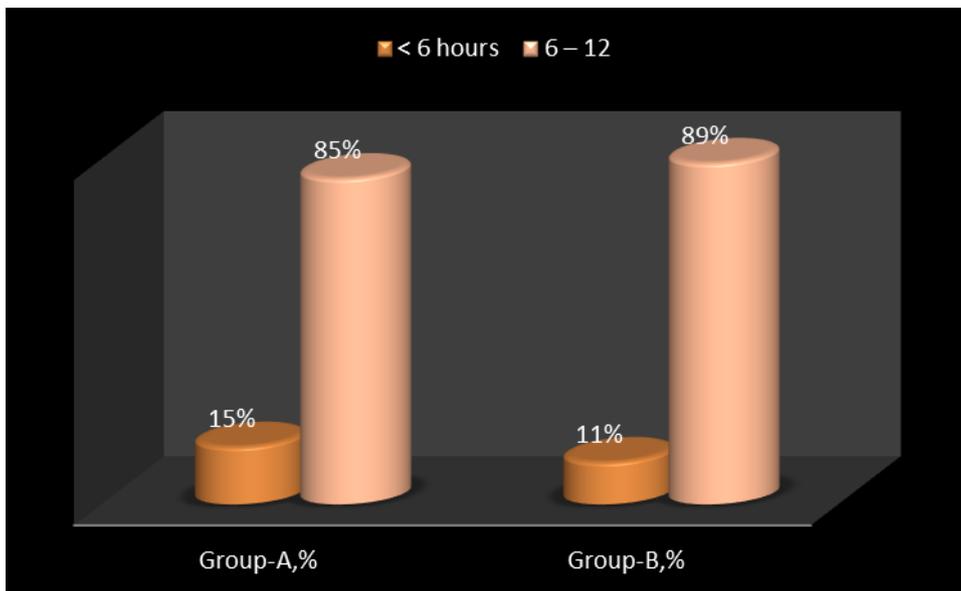


Figure 3: Total ventilation time

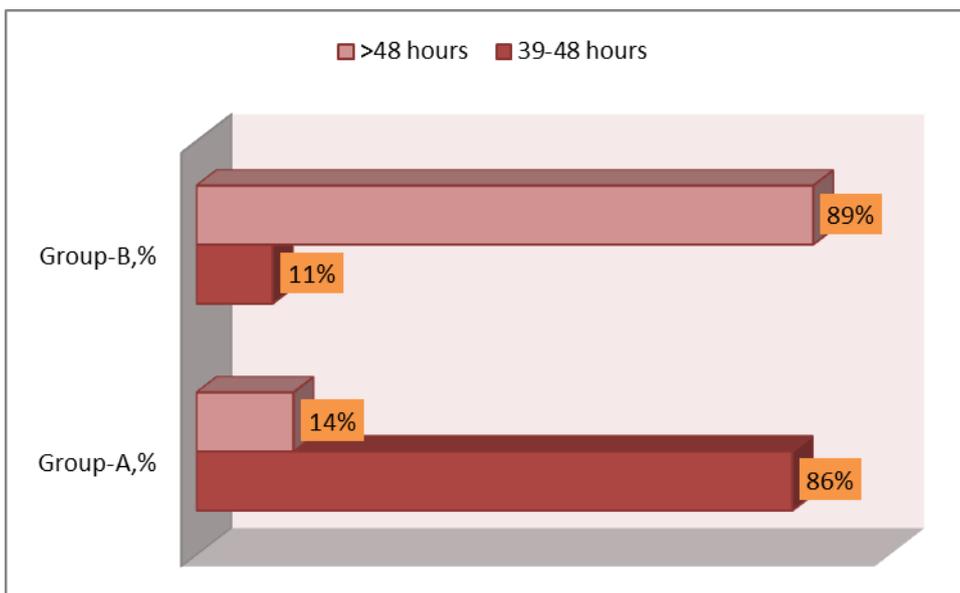


Figure 4: Total ICU Stay in hours of study population

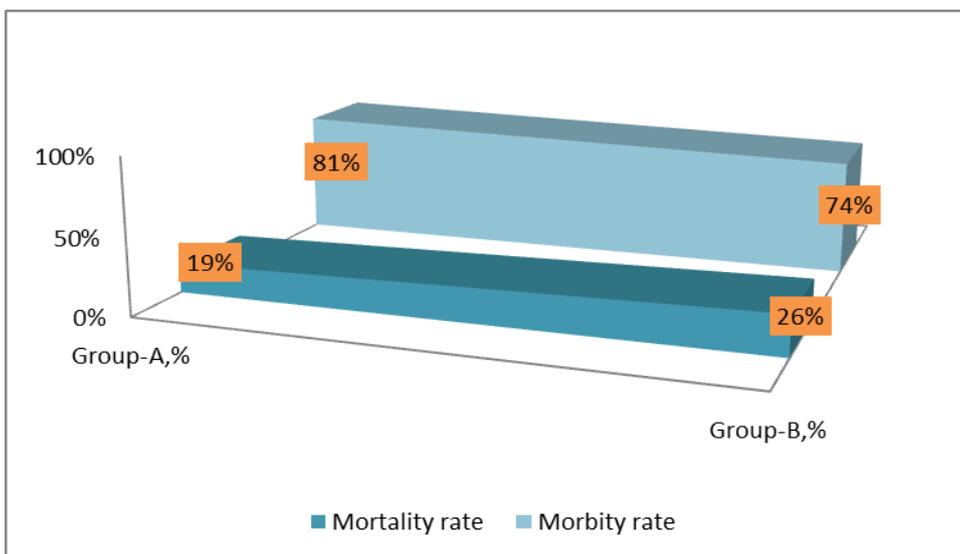


Figure 5: Mortality and morbidity rate of the patients

DISCUSSION

Most of the patients belong to 41-50 years age group for both Group A (47.78%) and group B (43.34%). There is no significance difference in age among groups. Similar type of several studies was done by other investigators.⁶⁻⁸

Regarding distribution of gender among the patients, in Group A (thoracic epidural analgesia along with general anaesthesia) 85% were male and 15% were female. In Group B (only general anaesthesia) 91% and 9% were male and female respectively. Other studies also support this result.^{7,8}

During the study total operation time in Group-A was 295.0±19.0 minutes and in Group-B was 285.5±16.6 minutes.

There was no statistically significant differences between two groups were observed. Study done by one article supports this result.⁶

The total ventilation time was observed in hours in both groups of patients. Total ventilation time 6-12 hours in 85% Group-A and in group-B it was 89% respectively which was statistical significant ($p < 0.05$). Study done by many article supported this study.^{7,8}

89% of Group-A patients stays in ICU for 39-4 hours whereas Group B it was 11%. In statistical analysis there was significant difference was found in two groups in respect to ICU stay in hours. In group A total 92% patients stay in hospital 6-10 days where as group B it was 14%. There was found statistically significant differences in respect to hospital stays in two groups.

In one report said that, during the perioperative period after excluding matched pairs where cases and/or controls had surgical procedures (cardiac, neurologic, and vascular surgeries) at high risk for ischemic stroke.⁹ 75% patients had ischemic and 25% had hemorrhagic and 75% patients had ischemic and 25% had hemorrhagic.

CONCLUSION

It can be concluded that TEA in combination with general anesthesia for surgery is comparatively safe rather than general anesthesia which reduce stroke development in patients. Further study is needed for better outcome. Procedure and epidural analgesia is an important adjunct to immediate extubation because the intraoperative anesthesia requirements are less and analgesia optimized.

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