

Assessment of Prevalence of Anesthetic Complications in Patients Undergoing Lower Abdominal Surgeries under General Anesthesia: An Observational Study

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ABSTRACT

Background: The term abdominal surgery broadly covers surgical procedures that involve opening the abdomen. Great variation exists in relation to prevalence of anesthetic complications in patients undergoing surgeries under general anesthesia. Hence; we planned the present study to assess prevalence of anesthetic complications in patients undergoing lower abdominal surgeries under general anesthesia.

Materials & Methods: A total of 100 patients were included in the present study. Complicate demographic details of all the patients was obtained. General Anesthesia was administered in all the patients by experienced anesthetist. Surgeries were carried by experienced and skilled surgeons. Complete follow-up records of all the patients were maintained. Recording of complications, if any, occurring in patients was done. All the results were summarized in Microsoft excel sheet.

Results: The most common complication present in the present study was transient hypotension. Other most commonly encountered complications were anaphylaxis, aspiration pneumonitis, embolism, postoperative pain etc.

Conclusion: Surgeons and clinicians should be aware of the complication of anesthesia and their risk factors so that occurrence of these complications could be avoided.


Key words: Anesthesia, Complications, General.

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Article History:

Received: 08-06-2017, Revised: 03-07-2017, Accepted: 28-07-2017

Access this article online	
Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2017.3.4.059	

INTRODUCTION

The term abdominal surgery broadly covers surgical procedures that involve opening the abdomen. Open abdominal surgery is performed through large incisions so that the area being operated on is in direct view.¹ This is effective but leads to lengthy recovery times, significant absence from work and regular activities, and large cosmetic defects. Although general anesthetics are often said to be nonspecific agents, it is likely that they act at a much more restricted set of target sites than commonly believed.²⁻⁴ The traditional view has been that the primary targets are lipid portions of nerve membranes, but recent evidence shows that the effects on lipid bilayers of clinically relevant levels of anesthetics are very small. Effects on most proteins are also small, but there are notable examples of proteins that are extremely sensitive to anesthetics and mimic the pharmacological profile of anesthetic target sites in animals. Such target sites are amphiphilic in nature,

having both hydrophobic and polar components. Great variation exists in relation to prevalence of anesthetic complications in patients undergoing surgeries under general anesthesia.⁵⁻⁷ Hence; we planned the present study to assess prevalence of anesthetic complications in patients undergoing lower abdominal surgeries under general anesthesia.

MATERIALS & METHODS

The present study was planned in the Department of Anesthesiology, Santosh Medical College & Hospital, Ghaziabad, Uttar Pradesh (India) and it included assessment of prevalence of anesthetic complications in patients undergoing lower abdominal surgeries under general anesthesia. Written consent was obtained from all the patients after explaining in detail the entire research protocol.

Inclusion Criteria

- Patients between the age group of 25 to 55 years,
- Patients with negative history of any known drug allergy,
- Patients with negative history of presence of any other systemic illness,
- Patients scheduled to undergo any form of lower abdominal surgeries under general anesthesia

After meeting the exclusion criteria, a total of 100 patients were included in the present study. Complicate demographic details of all the patients was obtained. General Anesthesia was administered in all the patients by experienced anesthetist. Surgeries were carried by experienced and skilled surgeons. Complete follow-up records of all the patients were maintained. Recording of complications, if any, occurring in patients was done. All the results were summarized in Microsoft excel sheet and were analyzed by SPSS software. Univariate regression curve was used for assessment of level of significance.

RESULTS

Enrollment of 100 patients scheduled to undergo abdominal surgery were included in the present study. Among these subjects, 42 were males while the remaining 48 were females. Mean age of the subjects of the present study was 44.8 years. Mean duration of surgery in the present study was 102 minutes. Anesthesia related complications were seen in 10 patients. The most common complication present in the present study was

transient hypotension. Other most commonly encountered complications were anaphylaxis, aspiration pneumonitis, embolism, postoperative pain etc.

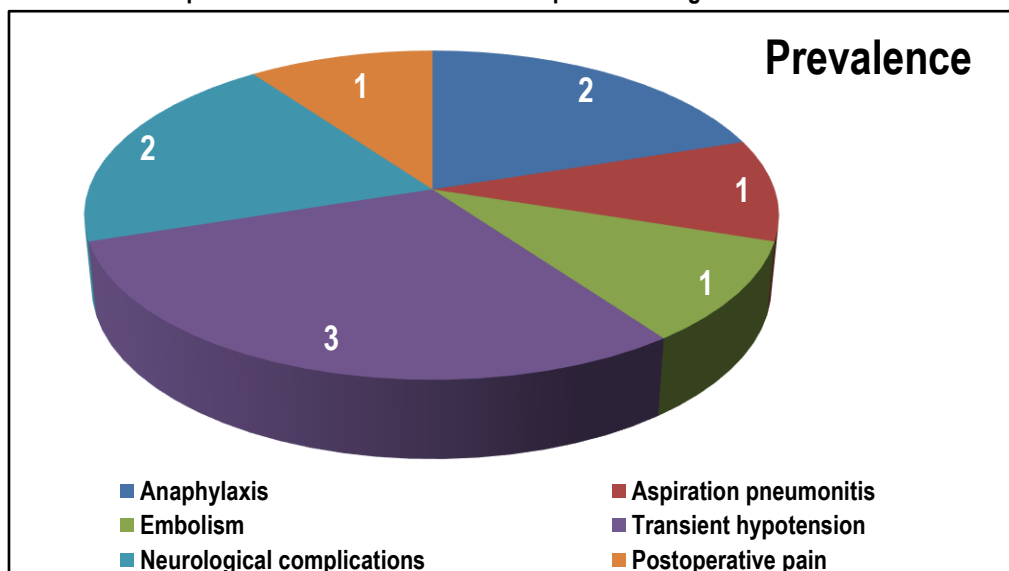
Table 1: Demographic details of the patients undergoing surgeries

Parameter	Mean value
Mean age (years)	44.8
Number of subjects	100
Males	42
Females	58
Mean duration of surgery (minutes)	102

Table 2: Prevalence of anesthetic complications of general anesthesia

S No.	Anesthetic complication	Prevalence
1.	Anaphylaxis	2
2.	Aspiration pneumonitis	1
3.	Embolism	1
4.	Transient hypotension	3
5.	Neurological complications	2
6.	Postoperative pain	1
	Total	10

Graph 1: Prevalence of anesthetic complications of general anesthesia

**DISCUSSION**

In the present study, Enrollment of 100 patients scheduled to undergo abdominal surgery were included in the present study. Among these subjects, 42 were males while the remaining 48 were females. Mean age of the subjects of the present study was 44.8 years. Mean duration of surgery in the present study was 102 minutes. Anesthesia related complications were seen in 10 patients. Gottschalk A discussed the side-effects of anesthesia. Recent years have seen a rise in overall anesthesia-related mortality. Anesthesia-related mortality has fallen from 6.4/10 000 in the 1940s to 0.4/100 000 at present, largely because of the introduction of safety standards and improved training. The current figure of 0.4/100 000 applies to patients without major

systemic disease; mortality is higher among patients with severe accompanying illnesses, yet in this group, too, perioperative mortality can be reduced by appropriate anesthetic management. Moreover, the use of regional anesthesia can also improve the outcome of major surgery. A recent increase in the percentage of older and multimorbid patients among persons undergoing surgery, along with the advent of newer types of operation that would have been unthinkable in the past, has led to an apparent rise in anesthesia-associated mortality, even though the quality of anesthesiological care is no worse now than in the past. On the contrary, in recent years, better anesthetic management has evidently played an important role in improving surgical outcomes.⁸

The most common complication present in the present study was transient hypotension. Other most commonly encountered complications were anaphylaxis, aspiration pneumonitis, embolism, postoperative pain etc. Li G et al examined the epidemiologic patterns of anesthesia-related deaths at the national level. The authors searched the International Classification of Diseases, 10th Revision manuals for codes specifically related to anesthesia/anesthetics. These codes were used to identify anesthesia-related deaths from the US multiple-cause-of-death data files for the years 1999-2005. Rates from anesthesia-related deaths were calculated based on population and hospital surgical discharge data. The authors identified 46 anesthesia/anesthetic codes, including complications of anesthesia during pregnancy, labor, and puerperium (O29.0 - O29.9, O74.0-74.9, O89.0-O89.9), overdose of anesthetics (T41.0 -T41.4), adverse effects of anesthetics in therapeutic use (Y45.0, Y47.1, Y48.0 - Y48.4, Y55.1), and other complications of anesthesia (T88.2- T88.5, Y65.3). Of the 2,211 recorded anesthesia-related deaths in the United States during 1999-2005, 46.6% were attributable to overdose of anesthetics; 42.5% were attributable to adverse effects of anesthetics in therapeutic use; 3.6% were attributable to complications of anesthesia during pregnancy, labor, and puerperium; and 7.3% were attributable to other complications of anesthesia. Anesthesia complications were the underlying cause in 241 (10.9%) of the 2,211 deaths. The estimated rates from anesthesia-related deaths were 1.1 per million population per year (1.45 for males and 0.77 for females) and 8.2 per million hospital surgical discharges (11.7 for men and 6.5 for women). The highest death rates were found in persons aged 85 yr and older. Each year in the United States, anesthesia/anesthetics are reported as the underlying cause in approximately 34 deaths and contributing factors in another 281 deaths, with excess mortality risk in the elderly and men.⁹

Guay J et al summarized Cochrane reviews that assess the effects of neuraxial anesthesia on perioperative rates of death, chest infections, and myocardial infarction. They have included all Cochrane systematic reviews that examined subjects of any age undergoing any type of surgical (open or endoscopic) procedure, compared neuraxial anesthesia to general anesthesia alone for the surgical anesthesia, or neuraxial anesthesia plus general anesthesia to general anesthesia alone for the surgical anesthesia, and included death, chest infections, myocardial infarction, and/or serious adverse events as outcomes. Their scores on the Overview Quality Assessment Questionnaire varied from 4 to 6 of a maximal possible score of 7. Compared with general anesthesia, neuraxial anesthesia reduced the 0- to-30-day mortality (risk ratio [RR] 0.71; 95% confidence interval [CI], 0.53-0.94; I = 0%) based on 20 studies that included 3006 participants. Neuraxial anesthesia also decreased the risk of pneumonia (RR 0.45; 95% CI, 0.26-0.79; I = 0%) based on 5 studies that included 400 participants. No difference was detected in the risk of myocardial infarction between the 2 techniques (RR 1.17; 95% CI, 0.57-2.37; I = 0%) based on 6 studies with 849 participants. Compared with general anesthesia alone, adding neuraxial anesthesia to general anesthesia did not affect the 0- to-30-day mortality (RR 1.07; 95% CI, 0.76-1.51; I = 0%) based on 18 studies with 3228 participants. No difference was detected in the risk of myocardial infarction between combined neuraxial anesthesia-general anesthesia and general anesthesia alone (RR

0.69; 95% CI, 0.44-1.09; I = 0%) based on 8 studies that included 1580 participants. Adding a neuraxial anesthesia to general anesthesia reduced the risk of pneumonia (RR 0.69; 95% CI, 0.49-0.98; I = 9%) after adjustment for publication bias and based on 9 studies that included 2433 participants. The quality of the evidence was judged as moderate for all 6 comparisons. The quality of the reporting score of complications related to neuraxial blocks was 9 (4 to 12 [median {range}]) for a possible maximum score of 14. Compared with general anesthesia, neuraxial anesthesia may reduce the 0-to-30-day mortality for patients undergoing a surgery with an intermediate-to-high cardiac risk (level of evidence moderate).¹⁰

CONCLUSION

General anesthesia is routinely used in the surgical field in patients undergoing different forms of surgeries. Surgeons and clinicians should be aware of the complication of anesthesia and their risk factors so that occurrence of these complications could be avoided. However, further studies are recommended.

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Source of Support: Nil.

Conflict of Interest: None Declared.

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Cite this article as: Sunil Kumar, Sanjay Jain. Assessment of Prevalence of Anesthetic Complications in Patients Undergoing Lower Abdominal Surgeries under General Anesthesia: An Observational Study. *Int J Med Res Prof.* 2017; 3(4):260-62. DOI:10.21276/ijmrp.2017.3.4.059