



ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES OF PRE-OPERATIVE FASTING AMONG ANAESTHESIOLOGISTS OF HOSPITALS IN GHAZIABAD: A CROSS-SECTIONAL STUDY

Anaesthesiology

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ABSTRACT

Background: The risk of pulmonary aspiration can be reduced by pre-operative fasting. The leading societies of anaesthesia have adopted more liberal fasting guidelines to avoid the adverse effect of prolonged fasting. This study was aimed to assess knowledge, attitude and practices of pre-operative fasting among anaesthesiologists of hospitals in Ghaziabad: A cross-sectional study. **Materials and Methods:** A cross-sectional study was conducted on anaesthesiologists of private hospitals in Ghaziabad. Questionnaire consisted of 11 questions was sent through email to anaesthesiologists. 238 questionnaires were finally included in the study. The standard of assessment was practice guidelines regarding pre-operative fasting given by American Society of Anaesthesiologists (ASA). Data analysis was done by using SPSS version 20. **Results:** 47.9% participants were having less than 5 years of experience, 36.1% were having 5-10 years of experience and 16% participants were having more than 10 years of experience. 24.4 % responded that anaesthesiologists and surgeon informed patients about fasting a day before surgery in their hospitals. **Conclusions:** ASA guidelines regarding pre-operative fasting was followed by majority of anaesthesiologists. Organization of educational programmes and regular audits are required.

KEYWORDS

Fasting, Anaesthesiologists, Guidelines

Introduction

The goal of Pre-operative fasting (POF) is to minimize the risk of regurgitation, vomiting, aspiration and the complications there of during anaesthesia or surgery¹. In 1946, the paper published by Mendelson claimed a very high incidence of pulmonary aspiration during general anaesthesia (GA) in obstetrics². Conventionally, preoperative fasting is advised to keep patients nil per os (NPO) from food and drink from midnight before the day of surgery to minimize the risk of pulmonary aspiration^{3,4}. Recent research show that pulmonary aspiration occurs only rarely as a complication of modern general anaesthesia and in fact prolonged fasting causes several adverse effects such as increased patient anxiety, discomfort and irritability, dehydration, thirst, hunger, hypovolaemia and hypoglycemia^{5,7}. Various anaesthesia societies like the American Society of Anaesthesiologists (ASA), The Association of Anaesthetists of Great Britain and Ireland (AAGBI), Royal College of Nursing (RCN) revised practice guidelines for preoperative fasting in healthy patients undergoing elective procedures and recommended a fasting period of 2 hours for clear fluids, 4 hours for breast milk and 6 hours for light meal/formula milk (Liberalised fasting)⁸⁻¹¹.

However, the adoption of the reviewed POF guidelines and their attendant benefits has been inconsistent globally. There are professionals in both developed and developing countries that are not following these guidelines¹²⁻¹⁴ particularly in terms of adherence to fasting time and instructions, leading to excessive fasting. Despite evidence that shortened preoperative fasts does not increase the risk of a harmful event for the patient, contemporary practice still has wide variations across the country. Thus, the study was conducted to assess the knowledge, attitude and practices of pre-operative fasting among anaesthesiologists of hospitals in Ghaziabad.

Materials and Methods

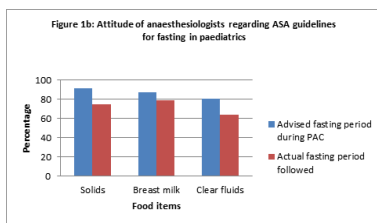
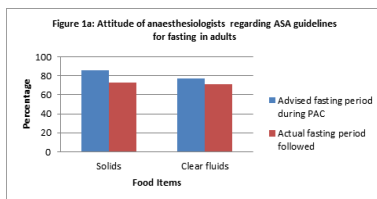
A cross-sectional study was conducted on anaesthesiologists of hospitals in Ghaziabad. The study was done in a duration of 3 months from May 2019 to July 2019. Ethical approval was taken from ethical review board of the institution. The anaesthesiologists were selected randomly from 50 hospitals in Ghaziabad. The contact information of the anaesthesiologists were manually collected from the respective hospitals and the purpose of the study was explained. All the anaesthesiologists who had shared their email addresses were included in the study. There were 264 anaesthesiologists in randomly selected 50 hospitals. Out of 264 anaesthesiologists, 252 had shared their email addresses. Sharing of the email addresses implied their consent. The sharing of email and participation in the study was voluntary and negation to participate in the study was not penalized in any form. Out

of 252, 238 anaesthesiologists actually participated in the study and sent back the completed questionnaire. In this study a pre-tested, self-administered, close-ended validated questionnaire was prepared from previously reviewed national surveys¹⁵⁻¹⁹. Questionnaire was sent through email to 238 anaesthesiologists by using commercially available Survey Monkey software. After initial emailing, 6 subsequent reminders (twice every month for three months) were sent. The filled questionnaires received from 238 anaesthesiologists were included in the final analysis. The questionnaire consisted of 11 questions containing demographic characteristics, questions related to knowledge of anaesthesiologists on pre-operative fasting as well as current practices and attitude towards fasting guidelines. American Society of Anaesthesiologists (ASA) practice guidelines for preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration: Application to healthy patients undergoing elective procedures was the standard of assessment^{8,9}. The pilot study was done on small group of anaesthesiologists for checking reliability of questionnaire. No major corrections were necessary. This data gathered during the pilot study was not included in the main study. Statistical analysis was done by using Statistical package for Social Sciences (SPSS) version 20. Data was collected and analyzed descriptively using frequencies and percentages.

Results

A cross-sectional study was conducted on knowledge, attitude and practices of pre-operative fasting among anaesthesiologists of private hospitals in Ghaziabad. A total of 238 anaesthesiologists were included in the study. 60% participants were working in non-teaching private hospitals and 18.1% were working as freelancer. 47.9% participants were having less than 5 years of experience, 36.1% were having 5-10 years of experience and 16% participants were having more than 10 years of experience. During pre-anaesthetic check-up (PAC), 51.7% anaesthesiologists always explained the reason for pre-operative fasting to patients. 31.1% sometimes and 17.2% never explained the reason for pre-operative fasting to patients during PAC. In case of monitored anaesthetic care, 73.9% respondents accepted patients who took clear liquids 2 hours prior routine surgery for anaesthesia whereas in regional anaesthesia 89.1% and in general anaesthesia 68.1% respondents accepted patients who took clear liquids 2 hours prior routine surgery for anaesthesia. There were some barriers in following the guidelines in the hospitals. Majority (76.9) of them believed that no control on scheduling of cases was the major drawback in not implementing the guidelines. 43.3% believed that high work-load in their hospitals was also a big barrier in following pre-operative fasting guidelines among patients (Table 1).

Figure 1a and Figure 1b were showing the attitude of anaesthesiologists regarding ASA guidelines for fasting in adults and paediatric patients respectively. During pre-anaesthetic check-up, 6-8 hours of fasting for solids was advised by 85.3% anaesthesiologists and 2 hours of fasting for clear fluids was advised by 77.3% in adults. During pre-anaesthetic check-up in paediatric patients, 6-8 hours of fasting for solids was advised by 91.6% anaesthesiologists, 4-6 hours of fasting for breast milk was advised by 86.9% anaesthesiologists and 2 hours of fasting for clear fluids was advised by 80.7% anaesthesiologists. The actually followed fasting guidelines in their hospitals were lesser than the advised one. Only 72.9% respondents confirmed that 6-8 hours of fasting for solids and 71% for 2 hours of fasting for clear fluids were actually followed in their hospitals for adults. However, 74.8% respondents confirmed that 6-8 hours of fasting for solids and 78.9% respondents confirmed that 4-6 hours of fasting for breast milk/formula milk and 64.3% respondents confirmed 2 hours of fasting for clear fluids were actually followed in their hospitals for paediatrics. Pre-operative fasting was informed to patients by various health care workers of the hospitals. 14.7% responded that anaesthesiologist, surgeon and nursing staff all of them informed patients about fasting a day before surgery in their hospitals but nursing staff (26.1%) was the most responded option among all. 24.4% responded that anaesthesiologists and surgeon informed patients about fasting a day before surgery in their hospitals (Figure 2a).



Drugs used for aspiration prophylaxis played an important role in pre-operative fasting. 20.6% anaesthesiologists responded that combination of ranitidine and metaclopramide was routinely used for aspiration prophylaxis in their hospitals. 17.6% anaesthesiologists used combination of ranitidine, metaclopramide and ondansetron in their hospital. 7.6% anaesthesiologists said that no drugs were routinely used in their hospitals for aspiration prophylaxis (Figure 2b). There are many advantages for implementing the guidelines for pre-operative fasting. 62.2% participants believed that pre-operative fasting improve well-being before an operation and 85.5% participants believed that pre-operative fasting improve sense of well-being after an operation. Reduced hospital stay helped in reduction in cost was also an advantage believed by 39.8% anaesthesiologists (Figure 2c).

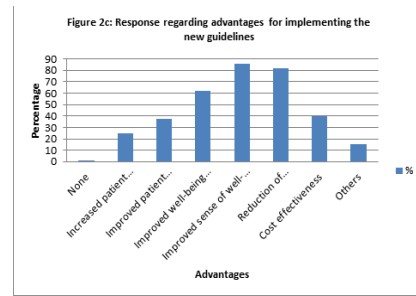
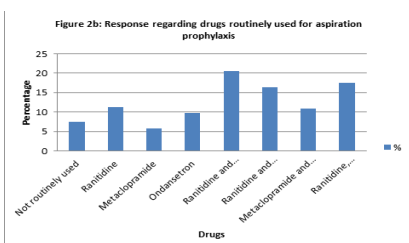
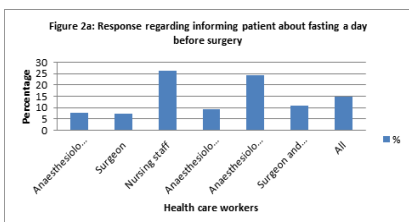


Table 1. Showing Demographic data, Knowledge and Practices of anaesthesiologists towards fasting guidelines

Working at					
	%	N	Trainee(<5 yrs exp.)	%	N
Govt. teaching hospital	2.5	6		47.9	114
Govt.non-teaching hospital	3.8	9	Junior consultant(5-10 yrs exp.)	36.1	86
Private teaching hospital	15.1	36	Senior consultant(>10yrs exp.)	16	38
Private non-teaching hospital	60.5	144			
Freelancing	18.1	43			
Reasons for not implementing guidelines					
Fasting time according to guidelines inadequate for Indian patients			%	N	
			11.3	27	
Hospital policy differs from guidelines			21.8	52	
Not having control on scheduling of cases			76.9	183	
Due to high workload in your institution			43.3	103	
Poor knowledge of surgeons regarding importance of fasting guidelines			26.5	63	
Ward nursing staff follow surgeons instructions than yours			40.8	97	
You think patients will not understand instructions properly			30.3	72	
You follow ASA fasting guidelines			13.4	32	
Any other reason			3.3	8	
Do you explain the reason for fasting to patients during PAC?					
Always		%	N		
		51.7	123		
Never		17.2	41		
Sometimes		31.1	74		
Do you accept the patients who took clear liquids 2 hours prior routine surgery for anaesthesia?					
Monitored Anaesthesia Care	Yes	%	N	No	%
		73.9	176	26.1	62
Regional Anaesthesia		89.1	212	10.9	26
General Anaesthesia		68.1	162	31.9	76

Discussion

In 1999, the international preoperative fasting guidelines have been officially published by ASA and revised recently in 2017⁹. In our study, a cross-sectional study was conducted on knowledge, attitude and practices of pre-operative fasting among anaesthesiologists of private hospitals in Ghaziabad. A total of 238 anaesthesiologists were included in the study. In our study, 60% participants were working in non-teaching private hospitals and 18.1% were working as freelancer. 47.9% participants were having less than 5 years of experience, 36.1% were having 5-10 years of experience and 16% participants were

having more than 10 years of experience. Similar studies were conducted by Gunawardhana SA²⁰, Panjiar P et al¹⁹ and Salman OH et al¹⁶.

In case of monitored anaesthetic care, 73.9% respondents accepted patients who took clear liquids 2 hours prior routine surgery for anaesthesia whereas in regional anaesthesia 89.1% and in general anaesthesia 68.1% respondents accepted patients who took clear liquids 2 hours prior routine surgery for anaesthesia. There were findings in other studies done by Shime N et al¹⁵ and Crenshaw TJ²¹ where preoperative fasting was prolonged compared with other guidelines. Although in a study done by Power S et al²² preoperative clear fluid intake 2 h before surgery was recommended by different guidelines and found to be safe for the patient. There were some barriers in following the guidelines in the hospitals. In our study 76.9% of them believed that no control on scheduling of cases was the major drawback in not implementing the guidelines. In a study conducted by Murphy GS et al²³ found no increase in cancellations or delays of surgical procedures due to in appropriate oral intake. In an audit conducted by Arun BG et al²⁴ in tertiary care hospital concluded that education of ward nurses and better coordination among the anaesthesiologists, surgeons and nurses can greatly reduce unnecessary preoperative starvation in children. In our study, during pre-anaesthetic check-up, 6-8 hours of fasting for solids was advised by 85.3% anaesthesiologists and 2 hours of fasting for clear fluids was advised by 77.3% in adults. During pre-anaesthetic check-up in paediatric patients, 6-8 hours of fasting for solids was advised by 91.6% anaesthesiologists, 4-6 hours of fasting for breast milk was advised by 86.9% anaesthesiologists and 2 hours of fasting for clear fluids was advised by 80.7% anaesthesiologists. A survey conducted by Alvi NI²⁵ at Aga Khan University Hospital (Pakistan) found that only 4% of children had had the optimum fasting at the time of survey. The actually followed fasting guidelines in their hospitals were lesser than the advised one.

Pre-operative fasting was informed to patients by various health care workers of the hospitals. In our study, 14.7% responded that anaesthesiologist, surgeon and nursing staff all of them informed patients about fasting a day before surgery in their hospitals but nursing staff (26.1%) was the most responded option among all. 24.4% responded that anaesthesiologists and surgeon informed patients about fasting a day before surgery in their hospitals. Similar results were found in a study done by Panjiar P et al¹⁹ reveals that most of the time, information about fasting a day before surgery to the patients was provided by either a nurse or surgeon. This could also be the reason for non-compliance of the guidelines. In our study, 20.6% anaesthesiologists responded that combination of ranitidine and metaclopramide was routinely used for aspiration prophylaxis in their hospitals. 17.6% anaesthesiologists used combination of ranitidine, metaclopramide and ondansetron in their hospital. 7.6% anaesthesiologists said that no drugs were routinely used in their hospitals for aspiration prophylaxis. In a study done by Brady MC et al²⁶ found that the preoperative fasting status has no impact on gastric pH and residual volume. In a study done by Frykholm P et al²⁷, factors such as inadequate anaesthetic depth, patient positioning, insufficient airway protection, gastrointestinal pathology and emergency cases were much more associated with the risk of aspiration than the patient's fasting state.

The response rate in our study was above 70% so non-response bias can be excluded. However, in studies done by Panjiar P et al¹⁹, Shime N et al¹⁵ and Salman OH et al¹⁶ response rate was found low, so non-response bias cannot be excluded. There are some limitations in our study. The collected data was subjective in nature and was not sure about its objectivity. Secondly, the location of the study was confined to a particular area so generalizability of the results in all other parts of India was not possible.

Conclusion

ASA guidelines regarding pre-operative fasting was followed by majority of anaesthesiologists. Regular monitoring and audits need to be done for preventing any fluctuations from the recommended guidelines. Pre-operative guidelines can be implemented in hospitals and instituted by a multi-professional approach only. Proper educational programs must be organised to increase the awareness among medical staff regarding the pre-operative fasting guidelines and benefits of following these guidelines.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Aguilar JE, Dock DB. Reducing preoperative fasting time. *World Journal of Gastrointestinal Surgery*. 2010; 2(3): 57–60.
- Mendelson CL. The aspiration of stomach contents into the lungs during obstetric anesthesia. *Am J Obstet Gynecol*. 1946; 52: 191–205.
- Brady MC, Kinn S, Ness V, O'Rourke K, Randhawa N, Stuart P. Preoperative fasting for preventing perioperative complications in children: review. *Cochrane Libr*. CD005285.
- Soreide E, Eriksson IL, Hirlekar G. Pre-operative fasting guidelines: an update. *Acta Anaesthesiol Scand*. 2005; 49: 1041–47.
- Bilehjani E, Fakhari S, Yavari S, Panahi J, Afhami M, Nagipour B. Adjustment of preoperative fasting guidelines for adult patients undergoing elective surgery. *Open J Intern Med*. 2015; 5: 115–8.
- Bopp C, Hofer S, Klein A, Weigand MA, Martin E, Gust R. A liberal preoperative fasting regimen improves patient comfort and satisfaction with anaesthesia care in day-stay minor surgery. *Minerva Anaesthesiol*. 2009; 75: 1–7.
- Jayasinghe V, Mahesh PK, Sooriaarachchi CM, Jayalath J, Karunarathne W, Liyanage SN. Evaluation of the effect of pre-operative over-fasting on post-operative vomiting in children undergoing bone marrow aspiration at a tertiary care center in Sri Lanka: A prospective cohort study. *Indian J Anaesth*. 2018; 62: 366–70.
- American Society of Anaesthesiologists Task Force on Preoperative Fasting. Practice guidelines for preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration: Application to healthy patients undergoing elective procedures. *Anesthesiology*. 1999; 90: 896–905.
- Practice Guidelines for preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration: Application to healthy patients undergoing elective procedures: An updated report by the American Society of Anaesthesiologists Task force on preoperative fasting and the use of pharmacologic agents to reduce the risk of pulmonary aspiration. *Anesthesiology*. 2017; 126: 376–93.
- Smith I, Kranke P, Murat I, Smith A, O'Sullivan G, Soreide E. Perioperative fasting in adults and children: Guidelines from the European society of anaesthesiology. *Eur J Anaesthesiol*. 2011; 28: 556–69.
- Perioperative fasting in adults and children- a RCN guideline for the multidisciplinary team. *Clinical Practice Guidelines*. RCN Publications. 2005
- Johnson RE, Eckert PP, Gilmore W, Viswanath A, Finkelman M, Rosenberg MB. Most American Association of Oral and Maxillofacial Surgeons members have not adopted the American Society of Anaesthesiologists-recommended Nil Per Os guidelines. *Journal of Oral and Maxillofacial Surgery*. 2016; 74(10): 1926–31.
- Ingadottir B, Olafsdottir AM, Sveinsdottir H. Preoperative fasting: instructions to patients and length of fasting—a prospective, descriptive survey. *Laeknabladid*. 2016; 102(6): 283–88.
- Al Maqbali MA. Preoperative fasting for elective surgery in a regional hospital in Oman. *British Journal of Nursing*. 2016; 25(14): 798–802.
- Shime N, Ono A, Chihara E, Tanaka Y. Current practice of preoperative fasting: A nationwide survey in Japanese anesthesia-teaching hospitals. *J Anesth*. 2005; 19: 187–92.
- Salman OH, Asida SM, Ali HS. Current knowledge, practice and attitude of preoperative fasting: A limited survey among Upper Egypt anaesthetists. *Egypt J Anaesth*. 2013; 29: 125–30.
- Breuer JP, Bosse G, Seifert S, Prochnow L, Martin J, Schleppers A. Pre-operative fasting: Anationwide survey of German anaesthesia departments. *Acta Anaesthesiol Scand*. 2010; 54: 313–20.
- McGaw CD, Ehikhametalar E, Nelson M, Soogrim D. A national survey on preoperative fasting policies and practices in Jamaican hospitals. *West Indian Med J*. 2004; 53: 227–33.
- Pratibha Panjiar, Anjali Kochhar, Homay Vajifdar, Kharat Bhat. A prospective survey on knowledge, attitude and current practices of pre-operative fasting amongst anaesthesiologists: A nationwide survey. *Indian J Anaesth*. 2019 May; 63(5): 350–55.
- Gunawardhana SA. Knowledge, attitude and practice of preoperative fasting guidelines in the National hospital of Sri Lanka. *Sri Lankan J Anaesthesiol*. 2012; 20: 92–5.
- Crenshaw TJ, Winslow HE. Preoperative fasting duration and medication instruction: are we improving? *AORN J*. 2008; 88(6): 963–76.
- Power S, Kavanagh OD, McConnell G, Cronin K, Corish C, Leonard M, Crean A, Feehan S, Eguare E, Neary P, Connolly J. Reducing preoperative fasting in elective adult surgical patients: a case control study. *Ir J Med Sci*. 2012; 181: 99–104.
- Murphy GS, Ault ML, Wong HY, Szokol JW. The effect of a new NPO policy on operating room utilization. *J Clin Anesth*. 2000; 12: 48–51.
- Arun BG, Korula G. Preoperative fasting in children: An audit and its implications in a tertiary care hospital. *J Anaesthesiol Clin Pharmacol*. 2013; 29: 88–91.
- Alvi NI. A prospective, cross-sectional survey of pre-operative fasting of pediatric surgical patients in a university hospital. *Anaesth PainIntensive Care*. 2016; 20: 171–75.
- Brady MC, Kinn S, Stuart P. Preoperative fasting for adults to prevent perioperative complications. *Cochrane Database Syst Rev*. 2003; 4: CD004423.
- Frykholm P, Schindler E, Sumpellmann R, Walker R, Weiss M. Preoperative fasting in children: Review of existing guidelines and recent developments. *Br J Anaesth*. 2017; 120: 469–74.