

**IMPACT OF PREOPERATIVE FASTING TIME ON POSTOPERATIVE
NAUSEA AND VOMITING**

[NAME]

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ABSTRACT

A number of surgeons and anesthesiologists consider preoperative fasting is very important and mandatory. Patients have had to fast for long hours due to a number of reasons such as inadequate knowledge on fasting instructions and delays in theatre schedules or changes. The effect of prolonged fasting has been witnessed from the review and this is one of the main factors that contribute significantly to postoperative complications such as postoperative nausea and vomiting (PONV). PONV is a common adverse effect in surgical patients and it is complex in anesthesia practice in regards to the increasing trend of surgery cases. This review focuses on how preoperative fasting time affects postoperative nausea and vomiting. The studies reviewed were obtained from Google scholar, research gate, PubMed and KoreaMed databases. The key terms used in the search were: “preoperative fasting”, “postoperative nausea and vomiting” and “Effect of preoperative on postoperative nausea and vomiting”. A total of 15 papers were selected and considered for this review and in-depth analysis carried out using table summarizing. The eligible papers for the review comprised of randomized controlled trials (n=8), cross-sectional (n=4), prospective (n=2) and retrospective study (n=1). The study findings revealed that a long preoperative fasting time caused postoperative complications such as PONV and a shortened preoperative fasting of 2 hours before surgery led to a decreased rate of PONV. Preoperative drinking has proved to reduce the risk of regurgitation or aspiration as compared to the fasting policy and, also it improves preoperative hunger, anxiety, patient discomfort and thirsty. Therefore, the study concludes that preoperative fasting time significantly influences PONV and there is need for further research to be carried out in the given area.

1. INTRODUCTION

The main purpose of this study is to determine how preoperative fasting time affects postoperative nausea and vomiting. The current guidelines on preoperative fasting recommend the consumption of fluids up to 2 hours prior to induction of general anesthesia for instance the European guidelines and American Society of Anesthesiologists. This prevents the complications that arise such as thirst, hunger, discomfort and pain (Robinson, 2014). Unfortunately, these guidelines are not being followed in a number of hospitals due to the limited evidence-based studies (Smith, 2011) as much as these guidelines have been evolving. It has been noted in a number of studies that prolonged fasting is an inappropriate way to prepare patients for surgery. It has been detrimental to a high number of patients especially the elderly and young children. Thus, it is important and necessary for healthcare workers to instruct and encourage patients to keep taking fluids up to 2 hours prior to surgery in order to reduce complications such as the postoperative nausea and vomiting which remains to be a common occurrence. Despite the better understanding of postoperative nausea and vomiting in surgical techniques and use of few anesthetic drugs, several factors such as opioids that are used for pain management, preoperative fasting time, inhaling of anesthetics, hypotension and pain are still linked to the high incidences of postoperative nausea and vomiting (Cutshall, 2014). Other studies have revealed that overnight fasting is a major cause of PONV which contributes to about 50% to 80% cases (Apfel et al., 2012; Yavuz et al., 2014). Since the landmark of (Maltby, 1986), sufficient evidence has been collected that indicates that preoperative fluid treatment works best for surgical patients and it lowers the postoperative nausea and vomiting occurrence. Therefore, all the studies that have been carried out have focused mainly on preoperative fasting guidelines, preoperative premedication, evaluation and induction, prevention of PONV and treatment and none has majored on establishing the correlation that exists between preoperative fasting time and

postoperative nausea and vomiting. Hence, the need for this system literature review that has made it possible to determine the extent in which preoperative fasting affects postoperative nausea and vomiting. This dissertation comprised of four key sections that includes: background of the study section outlined the required information concerning the topic under investigation while relating it to the research objectives and questions, the method section has given the whole summary of how review was carried out, the findings section presented the study results and finally, the discussion and conclusion section has brought out the implications of the study results and identified areas that can be further researched on.

2. BACKGROUND OF THE STUDY

Preoperative fasting refers to a procedure or standard practice of “nothing by mouth” that is carried out before patients undergo some form of surgeries (Sendelbach, 2010; Taniguchi et al., 2012). According to the American Society of Anesthesiologists (ASA), preoperative fasting time is a duration that a patient is not allowed to take any form of food or fluids before surgery (ASA, 2011). European Society of Clinical Nutrition and Metabolism also recommends that taking liquids 2 hours before surgery prevents complications. This applies to all patients of all ages so that it can help them lower the acidity and volume of the contents taken. The practice is a global reality in healthcare system and it is universally accepted once the anesthetic practice begins and aspiration prevention (Gunawardhana, 2012). According to the study by (Anderson & Comrie, 2009), it reveals that fasting is necessary before surgery since it lowers the risk of mortality and morbidity that may result from aspiration and also for the safety of the patient. Aroni et al. (2012) reveals that majority of the hospitals have their patients undergoing a prolonged period of fasting that lasts between 12 to 16 hours which in turn may lead to a number of adverse effects such as abdominal discomforts, headache, irritability (Protic at al., 2010). The study by

(Bothmley & Mardell, 2005) reports that there is no need for prolonged fasting time since it is a major cause for complications such as the post operative nausea and vomiting (PONV). This led to the ASA developing guidelines that enhanced a more liberal preoperative fasting protocol. The fasting recommendation developed includes: uptake of clear liquids of 2 hours for a minimum fasting time, breast milk is 4 hours; any form of solid food that is light is 6 hours but for heavy meal such as meat pr fatty or fried then it takes 8 or more hours.

Globally, over 100 million patients undergo surgery with around 30% who encounter postoperative nausea and vomiting (Gan et al., 2003). This shows that PONV is one of the most common therapeutic challenges in anesthesia with the general incidence of between 25 to 30% in all surgeries and approximately 70% in patients who are high-risk (Lambert et al., 2009). This makes PONV to be one of the main concerns for all healthcare providers in a surgery setting. Tramer (2001) further confirmed that 30% of the general surgical patients experience PONV while the high-risk patients experiences 70 – 80% of it. The side effect ranges from distress to postoperative morbidity, increased costs of health care and even prolonged recovery. The introduction of APFEL score made it easier for screening of patients before surgery and the new guidelines on preoperative fasting has lead to the decrease of PONV rate. Yavux et al. (2014) clearly stated that the application of general anesthesia is improving and rapidly changing so that better outcomes can be achieved such as the utilization of multimodal drug standard procedure in preventing PONV. This includes the use of oxygen, management of pain, patient controlled antiemetic and administration of antiemetic drugs such as anxiolytics, corticosteroid, sedatives, enough hydration and antimuscarincis. Lambert et al. (2009) found out that PONV can be lowered using the preoperative fluid treatment. On the other hand, (Adanir et al., 2008) noted that not all patients should be given the preoperative treatment since some have existing

conditions or problems with heart, liver, kidney or brain that could worsen their state. Yilmaz (2013) revealed that administration of carbohydrates two hours before surgery is safe and it lowers patient discomfort and insulin resistance. Brady et al. (2003) revealed that patients who took clear fluids before surgery had lower risks of complications such as PONV as compared to those who had undergone fasting. The studies reviewed showed that patients who take clear liquids have reduced risks of complications thus the need to assess the link between preoperative fasting time and postoperative nausea and vomiting.

Various studies have supported the fact that during preoperative fasting time, majority of the patients may experience dehydration which results to increased catabolic pathways and complications such as postoperative nausea and vomiting. Blanchard (2012); Tudor (2006) indicated that postoperative nausea and vomiting increases with prolonged fasting time. Sharma et al. (2011) showed that pediatric patients between the ages of 6 months – 6 years who had prolonged fasting that lasted between 10 to 16 hours were prone to hypertension. Khoyratty, Modi, and Ravichandran (2010) indicated that prolonged preoperative fasting has a significant effect on complications such as PONV. This implied that observing the minimum recommendations for preoperative fasting does not influence the volume and pH of the stomach which in turn lowers the risk of aspiration and regurgitation. Baril and Portman (2007) revealed that prolonged preoperative fasting resulted from the patients' inadequate knowledge on the preoperative fasting rationale, lack of a fasting policy, the fast changing schedules for surgical and the practitioners mistrust. Hausal et al. (2001) in a randomized clinical trial of 252 patients undergoing abdominal surgery found out that PONV decreased with the shortened period of preoperative fasting. Apfel et al. (2012) found out that prolonged preoperative fasting increased the rate of PONV which may lead to prolonged stay in the hospital and diet tolerance of several

patients. Klemetti et al. (2009) pointed out that there was a strong positive association in a study that assessed the effect of preoperative fasting time on postoperative nausea and vomiting. This showed that there is sufficient evidence that supports the fact that the duration of preoperative fasting greatly influences PONV. In accordance with the number of studies mentioned, there is a clear indication that PONV remains to be a serious challenge in modern practice of anesthetic and it is majorly affecting patients in various ways such as unexpected admission, pulmonary aspiration, delayed recovery, dehydration and prolonged sick off. Hence, the need for this review to be conducted so that sufficient and reliable evidence can be obtained from the clinical studies that have been carried out on the effect of preoperative fasting time on postoperative nausea and vomiting and, also best approach on the length of preoperative fasting time can be established and adopted in clinical practice which would lead to better management of PONV during surgery.

Main Objective

The main objective of this study was to determine the effect of preoperative fasting time on postoperative nausea and vomiting.

The specific objectives include:

- i. To assess the required duration of preoperative fasting time.
- ii. To investigate how the incidences of postoperative nausea and vomiting can be reduced.
- iii. To establish the relationship that exists between preoperative fasting time and postoperative nausea and vomiting.

Research question

- i. How does the preoperative fasting time affect the postoperative nausea and vomiting (PONV)?

3. METHOD

The main aim of this study was to determine how preoperative fasting time affects the postoperative nausea and vomiting in surgery. The study considered and used the framework developed by (Kable et al., 2012) as a search strategy. The framework was appropriate as it enabled fast location of relevant literature and boosted readability as shown in Appendix I. The systematic literature review comprised of studies that were searched using Google scholar, PubMed and KoreaMed databases. The operational key terms used in the search are: “preoperative fasting”, “postoperative nausea and vomiting” and “Effect of preoperative on postoperative nausea and vomiting”. The search included all the articles published using English language only, peer-reviewed articles and the eligibility of the studies was determined in terms of their relevance to the topic under study. The studies that did not focus on preoperative fasting and postoperative nausea and vomiting as the main subjects and also the studies that had single rulings with no influence on postoperative nausea and vomiting were excluded. The review also excluded the studies that had been carried out before the year 2000. A total of 15 papers out of 35 papers that had been obtained from the databases were selected and used in the study and in-depth analysis carried out using table summarizing which comprised of the study design, study groups, techniques used in data collection, data analysis and the results. The 15 eligible papers deemed fit for the review comprised of randomized controlled trials (n=8), cross-sectional (n=4), prospective (n=2) and retrospective study (n=1).

4. FINDINGS

The study findings revealed that preoperative fasting is considered important and mandatory during surgery although it is worth noting that a number of studies indicated that prolonged preoperative fasting time is a common practice. The common practice has been linked to patients' lack of knowledge on fasting policy such as ASA guidelines which made them fast inappropriately for long. The study findings further reveals that a long preoperative fasting time is a major cause for postoperative complications such as PONV and a shortened preoperative fasting of 2 hours before surgery which is highly recommended leads to a decreased rate of PONV as shown in Table 4.1. Preoperative drinking has proved to reduce the risk of regurgitation or aspiration as compared to the fasting policy and, also it improves preoperative hunger, anxiety, patient discomfort and thirsty.

5. DISCUSSION AND CONCLUSIONS

The study found out that majority of the studies had a long preoperative fasting time which is considered unnecessary as much as preoperative fasting is a must prior to anesthesia so that it can prevent the occurrence of regurgitation, aspiration and even PONV (Ludwig et al., 2013). It is worth noting that overnight fast was highly practiced by several patients and this being the leading cause of a number of complications such as fatigue, hunger, weakness and thirst prior to surgery (Helminen et al. 2009). According to the study by (Power et al., 2011) shortened preoperative fasting time reduces the preoperative discomfort and postoperative complications thus the need to improve on fasting time. Hence, preoperative fasting time has proved to have a strong positive relationship on PONV which means that an increase in preoperative fasting leads to an increase in PONV. Currently, a number of health institutions have come up with favorable guidelines and they recommend that patients should have clear fluids 2 hours before surgery. The

clinical guidelines are essential in providing directions for the right duration of fasting and prevent dehydration which in turn prevents the occurrence of PONV. As per this review, the consumption of carbohydrate fluids is considered safe and this was consistent with the findings of (Protic et al. 2010) who revealed that preoperative feeding 2 hours prior to surgery had no effect on stomach volume and content of acidity thus safe for use. The findings of (Yagci et al., 2008; Gunawardhana., 2012) further showed that taking of fluids 2 hours prior to surgery did not have any association with complications like PONV. Maltby et al. (2004) also revealed that the consumption of carbohydrate fluids has a protective effect on PONV and better preoperative care for patients. The current preoperative fasting guidelines allow the consumption of clear fluids for 2 hours before surgery and yet this practice has not been fully adopted by anesthetists as shown in the findings. This leads to suggestion for further research so that the importance of the practice can fully be explored and adopted.

The review indicated that most patients are not aware of the existing guidelines and policies that in place in regards to preoperative fasting time. The inadequate knowledge has contributed to inappropriate long duration of fasting, which in turn affects the patient comfort and satisfaction. Hence, there is need for healthcare workers to take their patients through counseling and disseminate the required information on fasting instructions such as ASA guidelines and hospital policies prior to surgery. This would enable the safety and comfort of patients, and reduce the incidences of potential risks. The health institutions that do not have guidelines and policies should ensure they are established and educate their staff on the same so that they can fully comply.

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TABLES AND FIGURES

Table 4.1: Studies investigating the effect of preoperative fasting time on PONV

Researcher	Research design	Study groups	Data collection techniques	Data analysis	Findings
Hwang and Park (2015)	Prospective descriptive	75 patients selected from a university hospital	Data collected using self-report questionnaires and clinical electronic chart	t-test and regression analysis were utilized	Factors affecting development of PONV include: type of surgery ($t=3.44$, $p=0.001$) and preoperative fasting time ($t=5.93$, $p=0.001$). The variables accounted for 51.7% of PONV. Preoperative fasting time had the largest impact on PONV ($\beta=0.56$)
Abebe et al. (2016)	Cross-sectional study	A total of 260 patients selected randomly at the reception area of the theatre	Data collected using questionnaires	Descriptive analysis	A high number of patients (98.1%) were instructed to fast from midnight and only (5.8%) were taken through the importance of preoperative fasting. The mean fasting time obtained was 15.9 ± 2.5 hours for solid and 15.3 ± 2.3 hours for fluids.
Yilmaz (2013)	Randomized controlled trial, prospective study	40 patients were assigned randomly into two groups. Group C with 20 patients formed the preoperative carbohydrate drink and Group F formed preoperative fasting who fasted for 8 hours. Both groups were operated under anesthesia	State-Trait Inventory and Verbal Descriptive Scale were used to grade the nausea and anxiety levels filled in the computer generated randomization list.	Descriptive analysis, ANOVA, Friedman	No complications were noted. PONV was lower in group C as compared to group F
Ruth, Josphine,	Prospective,	370 patients	Data was	t-test,	The mean fasting

and Williams (2018)	observational and cross-sectional study	were eligible for the study and only 330 consented to the study. 226 were scheduled for morning slot and 104 for the afternoon slot.	collected using a semi-structured questionnaire	Mann-Whitney U-test, Chi-square	time for solids was significantly longer ($p=0.0001$) in patients presented for afternoon slot as compared to morning slot. Mean preoperative fasting time for clear fluids was significantly different in both groups.
Ajuzieogu et al. (2016)	Randomized controlled trial	90 ASA class I – II patients under general anesthesia grouped into three: Group F, n=30 Preoperative fasting time from midnight to time of operation. Group C, n=30 Carbohydrate-rich drink. Group P, n=30 Placebo drink(water)	Data collected using computer generated randomization list and STAI used in grading the scores	t-test	RVG and pH were the same for all the groups ($P=0.45$ and 0.90). PONV scores were lower in Group C as compared to F and P. Group C patients also had higher satisfaction ($p=0.001$). Generally, preoperative carbohydrate intake or water up to 2h before surgery is safe as compared to overnight fasting
Klemetti et al. (2009)	Randomized controlled trial	Randomly assigned into two groups: Intervention group, n=58 who received fasting instructions with proper nutritional counseling. Control group, n=58 who received fasting instructions according to the hospital instructions with no counseling on nutrition.	Questionnaires were used in data collection and the level of pain and nausea scored in post anesthesia care unit (PACU).	Chi-square, t-test, Mann-Whitney U-test	Children's preoperative fasting in case of solids did not differ significantly between the two groups while the case of liquids had a significant difference. There were no statistically significant difference between the two groups in terms of PONV
Gunawardhana (2012)	Cross-sectional	235 patients and 118 healthcare staff	Data collected using questionnaire	Descriptive analysis, Correlation	Prolonged fasting causes postoperative

				analysis	complications such as PONV. 2 hours is recommended for clear fluids and 6 hours for solids. Failure of implementation of guidelines is due to lack of knowledge and poor attitude among staff
Hausel et al. (2005)	Randomized controlled trial	Randomly assigned into three groups: Fasted group with n=58, Carbohydrate group with n=55, Placebo group with n=59	Data collected using computer generated randomization list and STAI used in grading the scores	t-test	The rate of PONV was higher in the fasted group than the carbohydrate group.
Singh et al. (2015)	Randomized controlled trial	120 patients randomly assigned into three groups: Group A, received carbohydrate rich drink. Group B received placebo drink. Group C fasted.	PONV and visual analogue score for pain noted down in a computer generated randomization list.	t-test	Preoperative consumption of carbohydrate-rich drink minimized PONV and pain. Taking carbohydrate fluids up to 2 hours before surgery did not relate with further postoperative complications.
Khoyratt et al. (2010)	Cross-sectional	A sample of 200 patients	Data collected using self-administered questionnaire	Descriptive analysis	Most patients applied the instructions given although a high number of them fasted earlier than the recommended time. Prolonged preoperative fasting time result to postoperative complications such as PONV
McCracken and Montgomery (2018)	Retrospective, before and after study	A total of 9916 patients on sedation, general anesthesia, regional anesthesia or their	PONV scores noted down in a computer generated randomization list.	Categorical data analysis	PONV significantly decreased in intervention group as compared to control group

		combination. They were divided into two groups that include: the intervention group, n=4724 who took 2hours fluids before surgery and control group, n=5192 who fasted for 8hours before surgery			
Dilmen et al. (2017)	Randomized controlled trial	43 ASA class I – II patients who were divided into three groups: Intervention group received oral carbohydrates solution. Control group fasted 8 hours before operation.	Blood samples and glucose were tested and scores obtained.	t-test	PONV did not change significantly
Crenshaw and Winslow (2002)	Cross-sectional	A sample of 155 patients	Interviews	Descriptive analysis	Majority of the patients received instructions on preoperative fasting time. On average, patients fasted for 12 hours and 14 hours for liquids and solids respectively. The fasting time was significantly longer than the recommended time by ASA.
Itou et al. (2011)	Randomized controlled trial	300 patients under general anesthesia were assigned into two groups: Intervention group received oral rehydration solution. Control group fasted	Evaluation of hydration and electrolytes.	t-test	PONV did not change significantly. Intervention group remained hydrated and had a lower rate of PONV.
Cakar et al. (2017)	Randomized controlled trial	90 patients assigned into	Visual analogue scale (VAS) was	ANOVA	PONV significantly

		three groups: Group 1 received carbohydrate-rich drink. Group 2 received overnight 5% glucose intravenous infusion. Group 3 fasted from midnight	used to evaluate preoperative discomforts and postoperative complications.		decreased when compared to Group 3. Group 1 and 2 underwent less pain than group 3.
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Source: Research, (2020)

APPENDICES

Appendix I: Search strategy

Step	Process
1	Purpose statement
2	Databases, search engines used
3	Search limits
4	Inclusion and exclusion criteria
5	Search terms
6	Documentation of search process
7	Test the relevance of articles
8	Summary table of included articles
9	Retrieve articles
10	Quality assessment
11	Review
12	Reference list

Source: Kable et al. (2012)

Appendix II: Search process of articles

Date of search	Database	Search terms	Results
02.04.2020	Google Scholar	Preoperative fasting	9
02.04.2020	Google Scholar	Postoperative nausea and vomiting	6
02.04.2020	Google Scholar	Effect of preoperative on post operative nausea and vomiting	4
Sub-total			19
02.04.2020	PubMed	Preoperative fasting	4
02.04.2020	PubMed	Postoperative nausea and vomiting	3
02.04.2020	PubMed	Effect of preoperative on post operative nausea and vomiting	3
Sub-total			10
02.04.2020	KoreaMed	Preoperative fasting	2
02.04.2020	KoreaMed	Postoperative nausea and vomiting	2
02.04.2020	KoreaMed	Effect of preoperative on post operative nausea and vomiting	2
Sub-total			6
Total			35

Source: Researcher, (2020)

Appendix III: Research Poster



IMPACT OF PREOPERATIVE FASTING TIME ON POSTOPERATIVE NAUSEA AND VOMITING

Names.....

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ABSTRACT

A number of surgeons and anesthesiologists consider preoperative fasting is very important and mandatory. Patients have had to fast for long hours due to a number of reasons such as inadequate knowledge on fasting instructions and delays in theatre schedules or changes. This review focuses on how preoperative fasting time affects postoperative nausea and vomiting. The studies reviewed were obtained from Google scholar, research gate, PubMed and KoreaMed databases. A total of 15 papers were selected and considered for this review and in-depth analysis carried out using table summarizing. The study findings revealed that a long preoperative fasting time caused postoperative complications such as PONV. Preoperative fasting time significantly influences PONV and there is need for further research to be carried out in the given area.

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INTRODUCTION

The main purpose of this study is to determine how preoperative fasting time affects postoperative nausea and vomiting. The current guidelines on preoperative fasting recommend the consumption of fluids up to 2 hours prior to induction of general anesthesia for instance the European guidelines and American Society of Anesthesiologists. Unfortunately, these guidelines are not being followed in a number of hospitals due to the limited evidence-based studies. Prolonged fasting is an inappropriate way to prepare patients for surgery and it has been detrimental to a high number of patients especially the elderly and young children. Prolonged preoperative fasting resulted from the patients' inadequate knowledge on the preoperative fasting rationale, lack of a fasting policy, the fast changing schedules for surgical and the practitioners mistrust. It is important and necessary for healthcare workers to instruct and encourage patients to keep taking fluids up to 2 hours prior to surgery in order to reduce complications such as the postoperative nausea and vomiting which remains to be a common occurrence.

METHODS AND MATERIALS

The study considered and used the framework developed by (Kable et al., 2012) as a search strategy. The systematic literature review comprised of studies that were searched using Google scholar, PubMed and KoreaMed databases. The search included all the articles published using English language only, peer-reviewed articles and the eligibility of the studies was determined in terms of their relevance to the topic under study. A total of 15 papers out of 35 papers were selected and in-depth analysis carried out using table summarizing. The eligible papers comprised of randomized controlled trials (n=8), cross-sectional (n=4), prospective (n=2) and retrospective study (n=1).

RESULTS

The study findings revealed that preoperative fasting is considered important and mandatory during surgery although it is worth noting that a number of studies indicated that prolonged preoperative fasting time is a common practice. The common practice has been linked to patients' lack of knowledge on fasting policy such as ASA guidelines which made them fast inappropriately for long. The study findings further reveals that a long preoperative fasting time is a major cause for postoperative complications such as PONV and a shortened preoperative fasting of 2 hours before surgery which is highly recommended leads to a decreased rate of PONV as shown in Table 4.1. Preoperative drinking has proved to reduce the risk of regurgitation or aspiration as compared to the fasting policy and, also it improves preoperative hunger, anxiety, patient discomfort and thirst. Hence, preoperative fasting time has proved to have a strong positive relationship on PONV which means that an increase in preoperative fasting leads to an increase in PONV.

DISCUSSION

The study found out that majority of the studies had a long preoperative fasting time which is considered unnecessary as much as preoperative fasting is a must prior to anesthesia so that it can prevent the occurrence of regurgitation, aspiration and even PONV (Ludwig et al., 2013). It is worth noting that overnight fast was highly practiced by several patients and this being the leading cause of a number of complications such as fatigue, hunger, weakness and thirst prior to surgery (Helminen et al. 2009). According to the study by (Power et al., 2011) shortened preoperative fasting time reduces the preoperative discomfort and postoperative complications thus the need to improve on fasting time. Currently, a number of health institutions have come up with favorable guidelines and they recommend that patients should have clear fluids 2 hours before surgery. The findings of (Yagci et al., 2008; Gunawardhana., 2012) further showed that taking of fluids 2 hours prior to surgery did not have any association with complications like PONV.

CONCLUSIONS

Preoperative fasting time has proved to have a strong positive relationship on PONV which means that an increase in preoperative fasting time leads to an increase in PONV. The review indicated that most patients are not aware of the existing guidelines and policies that in place in regards to preoperative fasting time. There is need for further research so that the importance of the practice can fully be explored and adopted.

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