

Discomforts related to fasting duration in elderly patients undergoing outpatient ophthalmic surgery

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ABSTRACT

Introduction: Prolonged fasting in perioperative care for elderly patients can cause discomforts that increase stress and irritability, negatively affecting their surgical experience. **Objective:** To investigate fasting duration and its associated discomforts in elderly patients undergoing outpatient ophthalmic surgery. **Methods:** A quantitative, observational, cross-sectional study with primary and secondary data collection, using forms for sample characterization, the Perioperative Thirst Discomfort Scale, and the Verbal Thirst Scale, in 51 patients during the pre and post-operative phases of outpatient surgery. Patients aged 60 or older, of both sexes, classified as ASA I or II, who consented to participate, were included. Exclusion criteria included cognitive, neurological, or auditory deficits that could impair communication. Statistical analysis was performed using EPI INFO 2.0 software. The study was approved by the Ethics Committee under opinion No. 4,701,043. **Results:** The study found that 37 (72.5%) patients fasted preoperatively for 4 to 8 hours, and 14 (27.4%) fasted for 9 to 24 hours. Most surgeries were facectomies (90.2%), with 96.1% of patients classified as ASA II. In the postoperative period, common discomforts included: 34 (66.7%) desire for water; 33 (64.7%) dry mouth; 32 (62.7%) thirst; 26 (51%) dry throat; and 23 (45.1%) dry lips. **Conclusion:** Fasting durations ranged from 4 to 24 hours, causing discomforts such as thirst and dryness in the mouth, throat, and lips, which are avoidable complications. New fasting guidelines should be followed to minimize these discomforts and improve the patient experience.

Keywords: Fasting; Preoperative care; Thirst; Perioperative nursing; Postoperative care.

INTRODUCTION

The number of people aged 60 and over in the population is growing steadily, with an estimated increase to 2.1 billion by 2050¹, with the life expectancy and quality of life of the elderly varying according to socioeconomic status, state of health and the region in which they live². In Brazil, it is estimated that the proportion of elderly people will reach 25.49% of the population, around 58.2 million, with a life expectancy of 76.3 years³⁻⁴.

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Faced with the advance of an aging population, there are some challenges for the health system due to the growing demand from older people who need surgical assistance. It is therefore essential for surgical teams to re-evaluate their fundamentals and concepts of perioperative care, considering that the model in force until now was mainly aimed at younger people⁵. In this case, it is worth developing newly updated protocols that take into account the physiological changes of aging, such as metabolism, fatigue, fasting, postoperative delirium, and thirst, among others, and that provide the surgical team with adequate support in terms of perioperative support methods for these patients⁵.

Among the challenges faced in the perioperative care of the elderly is fasting. Initially, fasting was recommended when anesthetic methods were still rudimentary, to avoid vomiting and aspiration of gastric contents that could result in pulmonary complications. In this case, fasting aims to ensure gastric emptying to prevent broncho-aspiration episodes during induction of anesthesia⁶.

The first protocol recommending preoperative fasting of 6 to 8 hours was devised by Mendelson in 1946, based on the relationship between feeding and pulmonary aspiration of gastric waste during childbirth using general anesthesia. Based on the relationship found, the author described 2 syndromes: the first was called massive atelectasis, which consists of aspiration of solid food resulting in airway obstruction, while the second syndrome was characterized by aspiration of liquid gastric content due to depression of laryngeal reflexes caused by general anesthesia. As a result, preoperative fasting was recommended for periods of more than 8 to 12 hours as a safety measure, but this approach has changed over the years^{6,7}.

The American Society of Anesthesiologists (ASA) recommends that patients of all ages drink fluids without residue at least 2 hours before surgery. For light diets, it is recommended to fast for 6 hours, while for meals including meat, solid, and fatty foods, the recommended fasting time is 8 hours or more^{7,8}.

Prolonged fasting has a negative impact on the elderly, not only in terms of physical balance but also in terms of emotional aspects, causing anxiety, for example, which in turn intensifies other signs such as dry mouth, body fatigue, and viscous saliva⁹.

One discomfort caused by fasting is thirst, which is defined as the set of sensations caused by the physiological need to drink water⁹. In addition to preoperative fasting, thirst is also triggered by the medications used and perioperative water imbalance⁹. In this case, faced with the discomfort caused by fasting and thirst, some negative behaviors can be triggered, including stress, anxiety, irritability and despair, which further intensify the discomfort of thirst in the perioperative period⁹.

Thirst is mistakenly not considered an important issue in the perioperative period, but its complexity and the fact that it is one of the most stressful experiences in the immediate postoperative period should be considered, as it results in distressing sensations, affects sleep quality, and increases anxiety in patients⁹⁻¹¹.

The questions that guided this study were: What is the average fasting time of elderly patients in the preoperative period of outpatient ophthalmic surgery and what are the main discomforts generated by fasting?

Given the problem presented, this study aimed to investigate the fasting time and its main discomforts in elderly patients undergoing outpatient ophthalmic surgery.

METHODS

This is a quantitative, observational, cross-sectional, exploratory, and descriptive study, which collected primary data by interview and secondary data by consulting medical records, in accordance with the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline. The research was carried out in a specialty outpatient clinic in the ABC Paulista region, which treats private patients, patients with health insurance, and patients from the Unified Health System (UHS). The outpatient clinic has an ophthalmology department with five operating rooms and performs an average of 79 procedures a month. To characterize the sample, the authors used a form made up of four parts, with open and closed questions, containing data on the participant's identification, pre-existing diseases, comorbidities, and habits, guidance provided on how long to fast from solid and liquid foods, the procedure to be performed, the type of anesthesia and the duration of the anesthetic-surgical process.

The sample for this study was made up of 51 pre- and post-operative patients who underwent surgery between May and July 2021 in the ophthalmic surgical center. Recruitment took place during the wait for surgery and, upon the patient's acceptance, the research objectives and ethical aspects were explained.

Data collection included patients aged 60 years or over, of both sexes, with an ASA I or II classification for physical status assessment, present at the outpatient clinic for surgery during the data collection period, who agreed to take part in the study. The choice to include only ASA I and II patients was due to the fact that they were able to undergo surgery in an outpatient surgery center, while patients with ASA III above were referred for surgery in a hospital surgery center. Patients with cognitive impairment, neurological diseases, or severe hearing impairment that would compromise communication¹¹ were excluded, and this data was collected from the patients' medical records.

The Perioperative Thirst Discomfort Scale (PTDS) and the Verbal Numeric Thirst Scale (VNS) were also used to measure thirst. The PTDS is a Likert scale to be applied in the perioperative period to assess the discomfort caused by thirst, identifying seven symptoms: my mouth is dry; my lips are dry; my tongue is thick; my saliva is thick; my throat is dry; I feel a bad taste in my mouth and I feel like drinking water¹². The VNS quantifies the intensity of thirst, scoring zero for no thirst; 1 to 3 points for mild thirst; 4 to

6 points for moderate thirst, and 7 to 10 points for severe thirst, in analogy to the visual/verbal numeric pain scale¹³. Medical records were also consulted to clarify and confirm some data.

This study complied with the regulatory standards for research involving human beings. It was therefore authorized by the Research Ethics Committee (REC), under opinion no. 4.701.043.

The data collected was organized in electronic databases and presented descriptively, also in the form of tables. The scientific mathematical analysis was carried out using EPI INFO 2.0 with absolute numbers, Standard Deviation (SD), median, minimum, and maximum values.

RESULTS

Of the 51 participants who underwent outpatient eye surgery in this study, 24 (47.1%) were female and 27 (52.9%) were male. In terms of age, 14 participants were between 60 and 65 years old, 17 between 66 and 72 years old, 8 between 73 and 77 years old, and 12 between 78 and 83 years old. Concerning marital status, 51% were married, 29.4% were single, and 19% were widowed. Only 11 of the participants (21.6%) did any paid work, while the vast majority, 40 (78.4%) were already retired.

Regarding the surgical procedure performed at the time of the study, 46 (90.2%) patients underwent facetectomy and 5 (9.8%) blepharoplasty. Most of the participants, 27 (52.9%), reported having had previous surgeries: 3 (5.88%) appendectomy, 2 (3.92%) tubal ligation, 1 (1.96%) mammoplasty, 1 (1.96%) coronary artery bypass grafting, 1 (1.96%) pterygium and 10 (31.37%) cataracts.

As for pre-existing comorbidities, Systemic Arterial Hypertension (SAH) predominated, reported by 40 (78.4%) participants, followed by Diabetes Mellitus (DM) 30 (58.8%), and lung diseases. Of all the participants, only 10 (19.7%) were smokers and reported smoking ten cigarettes a day.

With regard to the guidance received by the participants regarding fasting from solids and clear liquids before surgery, the time given to the participants was 7 hours. Concerning the length of time the patient had been fasting at the time of the interview, it was found that the majority were in agreement with the time recommended by the outpatient clinic, with 37 (72.6%) patients, but even so, 14 (27.4%) participants had fasted for more than 8 hours for solids and clear liquids.

With regard to the professional who advised the patient on fasting time, 34 (66.7%) of the participants reported having received advice on fasting time from doctors and 17 (33.3%) reported not knowing who had given the advice, all of them by telephone.

Regarding the ASA classification of the participants in this study, it was found that 2 (3.9%) were classified as ASA I, i.e., healthy patients with no organic alterations, 49 (96.1%) patients as ASA II, i.e., patients with mild or moderate systemic alterations.

Regarding the anesthetic procedure used in ophthalmic surgery, Table 1 shows that topical anesthesia (eye drops) consisting

of tetracaine hydrochloride and phenylephrine hydrochloride predominated in 35 (68.7%) patients. Lidocaine hydrochloride local anesthesia without vasoconstrictor was used in 12 (23.5%) of the patients who underwent cataract surgery, and lidocaine hydrochloride anesthesia with vasoconstrictor was used in 4 (7.8%) of the patients who underwent blepharoplasty surgery.

The average duration of the anesthetic-surgical procedure was 60 minutes and the average surgical time was 47 minutes, as shown in Table 1.

When the Perioperative Thirst Discomfort Scale (PTDS) was applied, 32 (62.7%) participants reported thirst in the postoperative period, 20 (39.2%) due to spontaneous complaints.

Regarding the signs and symptoms presented, 33 (64.7%) of the participants said they felt dry mouth. In the item that assessed dry lips, 23 (45.1%) of the participants reported being very uncomfortable. When it came to thick saliva, 20 (39.2%) of the participants said they were very uncomfortable. In addition, 26 (50.98%) of the participants said they had a dry throat, while 20 (39.2%) reported discomfort due to a bad taste in the mouth. The PTDS items that were most bothersome, according to the patients' responses, were the desire to drink water and a dry throat. Table 2 shows the data described above.

Table 1: Distribution of fasting time, orientation, ASA classification, types of drugs used in the anesthetic procedure, and duration of anesthesia of the participants. Santo André, SP, Brazil, 2021.

Variables	n	%
Solid fasting time		
4 to 8 hours	37	72.6
9 to 24 hours	14	27.4
Liquid fasting time		
4 to 8 hours	37	72.6
9 to 24 hours	14	27.4
Who advised fasting		
Doctor	34	66.7
Doesn't know	17	33.3
Anesthetic Risk Scale		
ASA I	2	3.9
ASA II	49	96.1
Type of anesthesia drug used		
Lidocaine hydrochloride without vasoconstrictor + bupivacaine hydrochloride	12	23.5
Lidocaine Hydrochloride + Epinephrine	4	7.8
Tetracaine hydrochloride and phenylephrine hydrochloride eye drops	35	68.7
Duration of anesthesia (minutes)		
35 to 59	19	37.3
60 to 120	32	62.7
Duration of surgery (minutes)		
35 to 59	7	43.6
60 to 120	44	86.3

*ASA I - Absence of organic, physiological, biochemical or psychiatric alterations.*ASA II - Systemic alterations that may or may not be related to the need for surgical intervention. Diseases without substantive functional limitations.

Regarding the discomforts caused by thirst and hunger, as shown in Table 3, 15 (29.4%) patients experienced dizziness, 7 (13.7%) reported nausea, 5 (9.8%) participants reported fatigue, and 1 (1.9%) participant experienced fainting and vomiting.

As for the numerical scale that measures the intensity of thirst, the prevalence of intensity classified between 0 and 5 was 26 patients (51%), the same was found in the application of the verbal hunger scale, in which 26 (51%) of the patients measured the intensity of hunger between 0 and 5. Table 4 summarizes the main complaints of discomfort reported by the patients interviewed in the postoperative period.

DISCUSSION

The results of this study show that prolonged fasting was associated with discomforts such as the desire to drink water, dry mouth, thirst, dry throat, and dry lips, negatively affecting the

surgical experience of the elderly. Thus, it is clear that there is still much to discuss about the care related to preoperative preparation, from the simplest surgeries to those of greater complexity. In recent years, preoperative fasting has become an important topic in this discussion, with the aim of minimizing its related complications in the immediate postoperative period⁸⁻¹⁴.

Fasting recommendations in most countries follow the ASA guidelines⁷⁻⁸, around 8 hours for solids. There is currently evidence that proves the effectiveness of shortened fasting times in the preoperative period; however, despite the evidence, the implementation of this practice is still incipient in Brazil^{15,16}.

A multicenter study carried out in 16 hospitals in nine Brazilian states highlights among its main results the long preoperative fasting time, which ranged from 6 to 8 hours. Studies like this make it clear that food deprivation is many times greater than what is intended, since around 80% of patients only have their procedure carried out after 8 hours of fasting, and this time can be even longer due to surgical delays, changes in the schedule of surgeries, extension of fasting by the patients themselves, who believe that the longer fasting time improves their response to the procedure, surgical cancellation, among others¹⁵⁻¹⁸.

Similar results were found in this study since an average of 8 hours of fasting was observed in 72.6% of the participants, i.e., the other 27.4% of those interviewed exceeded the recommended fasting time, which can result in negative experiences for the patient.

Physiologically, prolonged fasting potentiates the metabolic changes caused by the surgical trauma itself. This is because

Table 2: Items evaluated by the Perioperative Thirst Discomfort Scale (PTDS) in the postoperative periods. Santo André, SP, Brazil, 2021.

PTDS	n	%
Patient is thirsty		
Yes	32	62.7
No	19	37.3
Spontaneous complaint		
Yes	20	39.2
No	31	60.8
Dry mouth		
Not bothered at all	4	7.8
A little bothered	14	27.5
Very uncomfortable	33	64.7
Dry lips		
Not at all bothered	9	17.7
A little bothered	19	37.3
Very uncomfortable	23	45.1
Thick tongue		
Not at all bothered	11	21.6
A little bothered	23	45.1
Very uncomfortable	17	33.3
Thick saliva		
Not bothered at all	13	25.4
A little bothered	18	35.2
Very uncomfortable	20	39.2
Dry throat		
Not at all bothered	5	9.8
A little bothered	20	39.2
Very uncomfortable	26	51
Bad taste in mouth		
Not at all bothered	20	39.2
A little bothered	15	29.4
Very uncomfortable	16	31.3
Desire to drink water		
Not bothered at all	4	7.8
A little bothered	13	25.4
Very uncomfortable	34	66.7

Table 3: Discomforts and numerical scale of thirst and hunger related to/presented by patients in the postoperative period. Santo André, SP, Brazil, 2021.

Reported/presented discomforts	n	%
Dizziness	15	29.4
Fainting	1	1.9
Nausea	7	13.7
Vomiting	1	1.9
Fatigue	5	9.8
Verbal thirst scale		
0 – 5	26	51.0
6 – 10	25	49.0
Verbal hunger scale		
0 – 5	26	51.0
6 – 10	25	49.0

Table 4: Main discomforts reported by patients in the postoperative period. Santo André, SP, Brazil, 2021.

Reported/presented discomforts	n	%
Desire to drink water	34	66.7
Dry mouth	33	64.7
Thirst	32	62.7
Dry throat	26	51
Dry lips	23	45.1

fasting time leads to a reduction in insulin levels, which in turn starts the process of glycogenolysis⁹. However, in about 24 hours, hepatic glycogen is depleted, concomitantly activating the process of gluconeogenesis, which uses muscle protein as a source of energy for the cells, characterizing the process of catabolism to maintain cellular homeostasis. Once the fasting period is extended, lipids start to break down more, causing the brain to consume more ketone bodies and less glucose, resulting in intense dehydration and ketoacidosis. Faced with this compensatory mechanism, the main physiological change is greater insulin resistance, which in turn has repercussions on the inflammatory and immune response, as well as the healing process, with repercussions on the patient's recovery after surgery^{9,18}.

Prolonged fasting has a negative impact not only on physical and metabolic aspects but also on emotional responses, which impairs patient satisfaction and the surgical experience⁹⁻¹². A very common and uncomfortable symptom linked to fasting is perioperative thirst, which, when not met by water intake, becomes a problem, as it presents uncomfortable attributes that afflict the patient in the immediate postoperative period, such as dry lips, throat, and mouth, tongue, and thick saliva, the desire to drink water and a bad taste in the mouth⁹⁻¹².

Perioperative thirst is influenced and aggravated by various factors inherent to the patient and the anesthetic-surgical procedure, including anxiety, fear, pre-existing comorbidities, and prolonged and unnecessary fasting in the preoperative period. In the transoperative period, the patient is often subjected to orotracheal intubation, keeping the oral cavity exposed throughout the procedure, receiving various drugs, as well as blood loss, contributing to the occurrence of hormonal and biochemical reactions that trigger thirst and intensify its symptoms. As a result, in the postoperative period, patients experience intense thirst, which is often poorly managed by the teams and is undervalued and underestimated. This symptom is cited in similar studies by post-operative patients as distressing, even overriding the discomfort caused by hunger and pain^{9,19-20}.

In this sense, similar results have been found that confirm the discomfort triggered by perioperative thirst^{9,19-20}, since in the present study, according to the Verbal Numerical Thirst Scale, 49% of the elderly had more intense thirst, with a score between 6 and 10. Furthermore, using the Perioperative Thirst Discomfort Scale, 62.7% of the elderly reported feeling thirsty, and of these, 66.7% were very bothered by the desire to drink water. Most of the patients in this study also reported feeling very bothered by symptoms caused by thirst, such as dry mouth, thick saliva, dry lips and dry throat.

In addition to thirst, other discomforts are also commonly reported in the perioperative period, including Postoperative Nausea And Vomiting (PONV), which varies between 20% and 30% after general anesthesia and can reach 70% in high-risk patients. Gastrointestinal complications are the most frequent of the

complications described in the post-surgical period, with the most prevalent risk factors being the use of opioids, female patients, abstinence from smoking, and a previous history of PONV^{21,22}. PONV is among the most undesirable post-surgical side effects for patients and can lead to dehydration, airway compromise, suture dehiscence, hemorrhages, and esophageal rupture²¹⁻²³. It is associated with worse outcomes for surgical patients, increasing length of stay, and, consequently, hospital costs²¹⁻²³.

This study found lower rates of nausea compared to the literature, with only 13.7% of patients reporting it, and of these, only 1 had episodes of vomiting. It is believed that this is due to the fact that these symptoms are more frequent complications in major surgical procedures and those under general anesthesia²¹⁻²³, and are less frequently reported in outpatient procedures such as those evaluated in this study.

According to the results, it is clear that prolonged fasting can lead to a series of discomforts and complications, as well as damaging the patient's surgical experience. Even so, many institutions adopt old recommendations for prolonged fasting times for solid and liquid foods, not taking into account the patient's well-being, possible delays in surgery, and other factors that contribute to exacerbated fasting times^{15-16,24}.

However, this practice has been questioned and challenged by recent protocols that highlight the role of excessive fasting in intensifying metabolic and emotional changes inherent to the anesthetic-surgical process itself, aggravating discomfort, especially in the postoperative period, and which in major surgeries can cause complications that prolong the patient's recovery time after surgery and reduce surgical patient satisfaction^{15-16,24}.

In other words, prolonged fasting is at odds with the most up-to-date recommendations, since there is currently scientific evidence that proposes shortening preoperative fasting to up to 2 hours before the start of the anesthetic-surgical procedure, especially for liquids with or without carbohydrates, with the aim of reducing the risk of dehydration and hypoglycemia, as well as ensuring greater patient comfort, without increasing the incidence of pulmonary aspiration in the perioperative period^{15-16,24}.

Adapting health services to up-to-date recommendations can minimize psychological discomforts, such as anxiety, thirst, and hunger caused by pre-operative fasting^{16,24}. Protocols such as the European Enhanced Recovery After Surgery (ERAS), drawn up by The European Society of Clinical Nutrition and Metabolism, and the Accelerated Total Recovery After Surgery (ACERTO) program, devised in Brazil, propose multidisciplinary actions aimed at faster recovery and recommend a reduction in food deprivation before surgical procedures, recommending fasting for 2 hours for liquids and 6 hours for solids, including the supply of carbohydrate-containing fluids^{16,24}.

It is worth pointing out that the nursing team plays a fundamental role in this regard, as their primary focus is to ensure the

patient's well-being, from surgical preparation, implementing specific care required for the surgery to be performed, to preventing possible complications during and after surgery. Controlling prolonged fasting should be included as essential nursing care when assisting surgical patients^{24,25}.

A collaborative approach between the multi-professional team is recommended, including the surgical team, anesthetists, and even nutritionists when necessary, with the aim of personalizing and adapting fasting recommendations for each patient, covering physical and emotional aspects, with the aim of reducing risks and preventing complications and discomfort in the postoperative period^{24,25}.

Faced with so many difficulties faced by the elderly undergoing a surgical procedure, prolonged fasting, and its discomforts would be avoidable complications, which justifies the relevance of the subject and the importance of studies with a larger population, different age groups, and different types of surgery^{24,25}.

Professional training is also an important point to be implemented because to provide safe, quality care, it is essential to train

all the professionals who take part in the perioperative process, following current and relevant scientific recommendations^{24,25}. It is worth pointing out that this study has limitations, as it was restricted to a cross-sectional design using a convenience sample limited to elderly people undergoing small outpatient ophthalmic surgeries, making it impossible to establish cause-and-effect relationships, and further research on the subject is needed.

Conclusion

Based on the data presented, it is clear that the fasting time of the elderly patients interviewed varied, with fasting times of 4 hours and up to 24 hours being reported, causing discomfort such as the desire to drink water, dry mouth, thirst, dry throat, and dry lips.

The discomforts of prolonged fasting are avoidable complications that impair the surgical patient's experience, which can cause harm to the patient and increase hospital costs. This demonstrates the need for health services to adapt to up-to-date recommendations, as well as uniform guidelines for the health professionals involved.

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