Original Article

Preoperative fasting time for elective surgeries at the state hospital of the interior of Rondônia, Brazil

Tempo de jejum pré operatório de cirurgias eletivas em hospital estadual do interior de Rondônia, Brasil

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ABSTRACT

Introduction: Long periods of fasting during the perioperative period may cause an exaggerated metabolic response and impairment in nutritional status, which may favor the emergence of systemic inflammatory response syndrome (SIRS) and decreased immune function. The objective of this study is to evaluate the preoperative fasting time of elective surgeries in a hospital in the interior of Rondônia, Brazil. **Methods:** This is an observational study carried out with 446 patients hospitalized for elective surgeries in a state hospital in Rondônia. **Results:** The mean age of the sample was 48.3±16.4 years, and most were female (52.7%). The mean preoperative fasting time was 12.40±2.87 hours, which was considered prolonged in relation to the recommendations of the current guidelines. Most patients (97.3%) remained fasting for 8 hours or more. Among the types of surgery, those with the highest average fasting times were general (14.20±2.90 hours) and oncological (13.07±2.26 hours). The lowest averages were observed in plastic (10.20 hours) and gynecological (10.70±1.34 hours) surgeries. **Conclusion:** The findings reinforce the need to review hospital protocols to reduce the preoperative fasting time, in order to minimize metabolic impacts and promote better surgical recovery. Strategies such as implementing fasting abbreviation protocols can contribute to the safety and well-being of patients.

RESUMO

Introdução: Longos períodos de jejum durante o período perioperatório podem causar uma resposta metabólica exagerada e comprometimento no estado nutricional, o que pode favorecer o surgimento da síndrome da resposta inflamatória sistêmica (SRIS) e a diminuição da função imunológica. O objetivo desse estudo é avaliar o tempo de jejum pré-operatório de cirurgias eletivas em um hospital do interior de Rondônia, Brasil. **Método:** Trata-se de um estudo observacional, realizado com 446 pacientes internados para cirurgias eletivas, em um hospital estadual de Rondônia. **Resultados:** A idade média da amostra foi de 48,3±16,4 anos, sendo a maioria do sexo feminino (52,7%). O tempo médio de jejum pré-operatório foi de 12,40±2,87 horas, sendo considerado prolongado em relação às recomendações das diretrizes atuais. A maioria dos pacientes (97,3%) permaneceu em jejum por 8 horas ou mais. Entre os tipos de cirurgia, as que apresentaram os maiores tempos médios de jejum foram as gerais (14,20±2,90 horas) e oncológicas (13,07±2,26 horas). As menores médias foram observadas nas cirurgias plásticas (10,20 horas) e ginecológicas (10,70±1,34 horas). **Conclusão:** Os achados reforçam a necessidade de revisão dos protocolos hospitalares para redução do tempo de jejum pré-operatório, visando minimizar impactos metabólicos e promover melhor recuperação cirúrgica. Estratégias como a implementação de protocolos de abreviação de jejum podem contribuir para a segurança e o bem-estar dos pacientes.

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INTRODUCTION

Preoperative fasting was established during a time when anaesthetic techniques were still rudimentary, with the aim of preventing pulmonary complications caused by vomiting and aspiration of gastric contents. This practice is intended to ensure gastric emptying and prevent the aspiration of fluids into the lungs during anaesthesia induction[1].

Research indicates that patients exposed to prolonged fasting periods during the perioperative phase may experience an exaggerated metabolic response and impaired nutritional status, which can contribute to the development of systemic inflammatory response syndrome (SIRS) and reduced immune function[2,3]. As a result, patients become more susceptible to infections due to metabolic changes associated with lower caloric intake, potentially leading to malnutrition, which compromises the immune system and weakens the body's inflammatory response[4].

The Brazilian Survey of Hospital Nutritional Assessment (IBRANUTRI) found that nearly 50% of patients hospitalized in the public health system are malnourished. Among surgical patients, the malnutrition rate ranged from 30% to 50%. Additionally, prolonged preoperative fasting, combined with surgical trauma, can negatively impact postoperative outcomes, increasing complications, affecting patient well-being, and prolonging hospital stays[5].

A Brazilian project called Accelerating Postoperative Total Recovery (ACERTO) recommends that, for elective surgical procedures, patients should be allowed to consume solid foods up to 6 to 8 hours before anaesthesia and clear liquids up to 2 hours prior[1]. The guidelines also emphasize the importance of individualized recommendations, considering the type of surgery and the patient's clinical condition. It is crucial that healthcare teams are well-informed about these recommendations to ensure clear communication with patients and adequate preparation for surgery[1].

Despite the introduction of new preoperative fasting protocols for elective surgeries, many institutions continue to follow outdated guidelines, often prolonging fasting beyond what is already considered excessive, with an average duration of 16 hours or more before the start of the anaesthetic procedure[6]. This discrepancy between clinical practice and updated recommendations underscores the need to reassess and standardize preoperative fasting protocols.

In addition to metabolic changes, prolonged fasting can cause psychological discomfort in patients, such as anxiety and agitation. If not properly identified and managed, these emotional states can lead to physical symptoms, such as thirst, hunger, nausea, vomiting, and generalized pain. This, in turn, can hinder patient cooperation in postoperative recovery, increase the risk of respiratory complications and agitation, and consequently prolong hospitalization[7].

The benefits of shortening preoperative fasting are increasingly evident, including a significant reduction in the risk of complications during surgical and anaesthetic procedures. Studies highlight that, in addition to posing no harm, reducing fasting duration is associated with improved patient recovery[8].

The Enhanced Recovery After Surgery (ERAS) protocol, developed by the ERAS Society, a European organization dedicated to improving perioperative care through evidence-based research and practice, provides guidelines for perioperative management across various surgical phases. Its primary objective is to optimize preoperative, intraoperative, and postoperative practices to mitigate trauma responses, minimize surgical complications, and promote faster recovery[9].

Prolonged fasting can lead to dehydration and muscle mass loss, further exacerbating malnutrition, weakening immune function, impairing wound healing, and altering organ function. These factors increase susceptibility to infections, contribute to higher morbidity and mortality rates, and extend hospital stays[10].

A study that implemented the ACERTO protocol demonstrated a significant reduction in both infectious and non-infectious complications, particularly among patients who adhered to the protocol. The incidence of surgical site infections decreased by 66%, from 11.5% (9 out of 78 patients) before implementation to 3.9% (9 out of 230 patients) after the adoption of the protocol. Additionally, the average hospital stay was reduced by two days, from five to three days[11].

METHODS

This is a cross-sectional, retrospective study conducted at the Regional Hospital of Cacoal (HRC) in Cacoal, Rondônia (RO), Brazil. The study included 446 patients aged 18 years or older, of both genders, who were hospitalized for elective surgical procedures from June to August 2024. Data were obtained from nutrition assessment forms and patient medical records, which were subsequently transcribed into a form developed by the researchers.

Collected data included demographic information (sex, age, and date of birth), clinical data (presence and type of comorbidities), and surgical data (type of procedure performed and preoperative fasting duration). Preoperative fasting duration was calculated as the difference between the scheduled time of the last meal and the time of anaesthetic induction. For statistical analysis, a preoperative fasting duration of 8 hours was used as a cut-off point, based on current recommendations.

For the statistical analysis of quantitative variables, measures of central tendency (mean and median) and

standard deviation (SD) were calculated. For qualitative variables, absolute and relative frequencies were determined, along with their respective 95% confidence intervals (95%CI).

This study was conducted in accordance with the ethics guidelines established by the Resolution No. 466 of December 12th, 2012, of the National Health Council. It was submitted to and approved by the Research Ethics Committee (REC), under approval number 7,268,684.

RESULTS

The sample consisted of 446 patients with a mean age of 48.3±16.4 years. The majority were female, accounting for 52.7% (n=235), with a 95% confidence interval (CI95%=0.48-0.57).

For the quantitative analysis, the mean preoperative fasting duration was 12.40±2.87 hours (95%CI=12.10-12.70), which was considered prolonged when compared to the recommendations of the American Society of Anesthesiology (ASA). Regarding the characterization of qualitative variables, most patients had no comorbidities (69.1%). Among those with comorbidities, the most prevalent condition was systemic arterial hypertension (21.7%). Concerning the type of surgery, orthopedic procedures were the most frequent, accounting for 47.1% of cases. In terms of age distribution, the majority of patients (74.9%) were under 60 years old (Table 1).

Figure 1 illustrates the distribution of preoperative fasting durations, demonstrating that most elective surgeries (97.3%) involved fasting periods of at least eight hours (≥8 hours).

Table 2 presents a comparison of preoperative fasting durations, categorizing them as greater or less than 8 hours. It was observed that most patients (97.3%; n = 434) fasted for more than 8 hours, whereas only 2.7% (n = 12) had fasting durations shorter than 8 hours. This difference was statistically significant ($p < 0.001$), indicating a considerable prevalence of prolonged fasting.

Table 1 – Sociodemographic, clinical, and surgical characteristics of patients undergoing elective surgeries at a state hospital in the interior of Rondônia (n=446).

	Level	n	%	p-value	CI95%	
Age group	≥60	112	21.5	<0.001	21.0	29.0
	<60	334	74.9	<0.001	71.0	79.0
Sex	Female	235	52.7	0.276	48.0	57.0
	Male	211	47.3	0.276	43.0	52.0
Type of Surgery	General	59	13.2	<0.001	10.0	17.0
	Urologic	36	8.1	<0.001	6.0	11.0
	Gynecologic	71	15.9	<0.001	13.0	20.0
	Orthopedic	210	47.1	0.236	42.0	52.0
	Oncological	41	9.2	<0.001	7.0	12.0
	Oral and maxillary	23	5.2	<0.001	3.0	8.0
	Vascular	1	0.2	<0.001	-	-
	Mastology	4	0.9	<0.001	0.0	2.0
	Plastic surgery	1	0.2	<0.001	-	-
Comorbidities	None	308	69.10	<0.001	64.5	73.3
	DM/HAS	30	6.70	<0.001	4.6	9.5
	HAS	97	21.70	<0.001	18.0	25.9
	DM	11	2.50	<0.001	1.2	4.4
Preoperative fasting time	>8 hours	434	97.3	<0.001	95.0	99.0
	<8 hours	12	0.27	<0.001	1.0	5.0

Quantitative variables (age, preoperative fasting time; categorized qualitative variables (gender, comorbidities, types of surgery, age group); n = sample size; 95%CI = confidence interval, SAH = systemic arterial hypertension; DM = diabetes Mellitus,

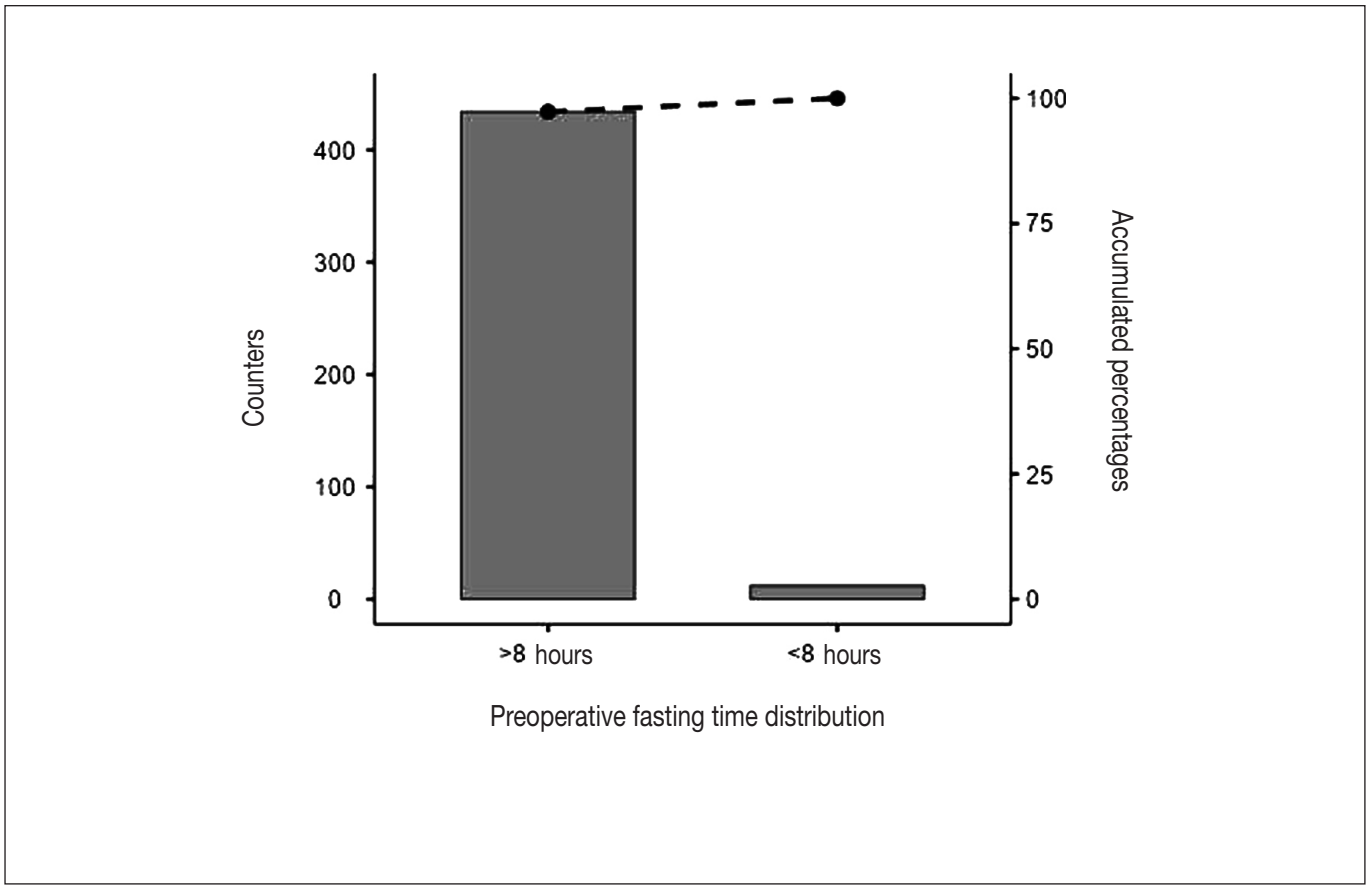

Figure 1. *Distribution of patients according to the preoperative fasting time (n=446).*

Table 2 – Comparison of preoperative fasting time greater or lesser than 8 hours.

Time	n	%	p-value	CI95%	
>8 hours	434	97.3	<0.001	95.4	98.0
<8 hours	12	2.7	<0.001	1.4	4.6

n = sample size; CI95% = confidence interval of 95%.

Table 3 displays the preoperative fasting duration across different surgical specialties, encompassing all 446 participants. The mean fasting time varied according to the type of surgery, with the longest duration observed in general surgery patients (14.20±2.90 hours) and the shortest in plastic surgery patients (10.20 hours). Notably, the mean fasting durations for maxillofacial and orthopedic surgeries were 12.90±3.26 hours and 12.50±3.14 hours, respectively, showing minor variations. For gynecological surgeries, the mean fasting duration was 10.70±1.34 hours, indicating a slightly shorter fasting period compared to other procedures. Oncological surgeries had a mean fasting duration of 13.10±2.26 hours, while urological surgeries had an average fasting duration of 11.20±1.45 hours. Vascular surgery, represented by a single patient, had a fasting duration of 10.90 hours, whereas mastology surgeries had a mean fasting duration of 10.40±0.63 hours.

DISCUSSION

The results of this study indicate that the preoperative fasting time for most patients was prolonged, with a mean duration of 12.40±2.87 hours, and 97.3% of patients fasting for ≥8 hours. These findings exceed the recommendations of the ASA, which suggests a fasting period of 6 hours for light solids and 2 hours for clear liquids before elective anaesthesia. Similar results have been reported in other studies, with mean fasting times of 12.53±2.48 hours and 13.1 hours, respectively[12,13].

Table 3 – Preoperative fasting time in hours, by type of surgery, comorbidities, and overall preoperative fasting time (n=446).

Type of Surgery	n	Average	SD	CI95%	
General	59	14.20	2.90	13.47	15,00
Urologic	36	11.20	1.45	10.70	11.7
Gynecologic	71	10.70	1.34	10.43	11.1
Orthopedic	210	12.50	3.14	12.08	12.9
Oncological	41	13.10	2.26	12.36	13.8
Oral and maxillary	23	12.90	3.26	11.45	14.3
Vascular	1	10.90	-	-	-
Mastology	4	10.40	0.63	9.44	11.4
Plastic surgery	1	10.20	-	-	-
Comorbidities					
None	308	12.40	2.82	12.10	12.70
DM/HAS	30	13.10	3.65	11.80	14.50
HAS	97	12.10	2.82	11.50	12.70
DM	11	12.50	2.30	11.00	14.10
Preoperative fasting time: overall average	446	12.40	2.87	12.10	12.70

n = sample size; SD = standard deviation; 95%CI = confidence interval of 95%; HAS = systemic arterial hypertension; DM = diabetes Mellitus.

The excessive fasting time observed in this study reflects a pattern still prevalent in many Brazilian institutions. A study conducted at a university hospital in Curitiba, SC, Brazil, found a median preoperative fasting duration of 14 hours, reinforcing the persistence of the practice of indiscriminate midnight fasting, regardless of the scheduled surgery time. This reality is corroborated by another study, which reported an average preoperative fasting time of 15 hours[14,15].

When fasting time was analysed by type of surgery, patients undergoing general and oncological procedures had the longest mean fasting durations (14.20 hours and 13.10 hours, respectively), similar to findings from other studies that also identified extended fasting times in these surgical groups[16]. This may be related to factors such as the complexity of the procedures and the absence of well-established institutional protocols for individualized fasting management.

The results of this study suggest that there is no single standard for preoperative fasting duration, reflecting the heterogeneity of hospital practices and protocols adopted for different procedures. The average fasting time ranged from 10.20 hours (for plastic surgeries) to 14.20 hours (for general surgeries), which contradicts current recommendations advocating for a more flexible approach, promoting faster recovery and reduce patient discomfort. This evidence underscores the necessity of reviewing preoperative fasting protocols and implementing measures to reduce fasting duration without compromising patient safety. The ACERTO project, which recommends the intake of clear liquids up to 2 hours before surgery and solid foods up to 6 hours before, serves as a model for practices aimed at enhancing postoperative recovery and improving patient comfort[1].

CONCLUSION

This study demonstrated that preoperative fasting durations in the hospital exceeded the recommendations established by updated protocols such as ACERTO and ERAS. Most patients undergoing elective surgeries fasted for eight hours or more—an outdated practice that no longer aligns with evidence-based guidelines.

The findings reinforce the need to review and standardize preoperative fasting protocols within the institution to promote safety, comfort, and efficiency in perioperative care. The adoption of evidence-based protocols, such as ACERTO, is essential to mitigate the negative effects of prolonged fasting, ultimately optimizing both the patient experience and clinical outcomes.

Additionally, multiprofessional training initiatives should be implemented to disseminate updated knowledge among healthcare professionals and ensure adherence to evidence-based

guidelines. This study contributes to the field by providing regionally relevant data and highlights the importance of future research exploring the impact of shortened fasting periods on care quality and patient recovery.

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Study location: Hospital Regional de Cacoal, Cacoal, RO, Brazil.

Conflict of interest: The authors declare there are none.