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PRE-ANESTHETIC EVALUATION AND ITS IMPACT ON REDUCING PERIOPERATIVE RISKS AND COMPLICATIONS

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Abstract: Preanesthetic evaluation (APA) is crucial to ensure patient safety during surgical procedures, identifying specific risks, and allowing for appropriate selection of anesthetic technique. As highlighted by Zheng SH and Mei XP (2021), the assessment determines patients' ability to tolerate anesthesia and contributes to the reduction of perioperative complications, as also recommended by CFM Resolution 2,174 and ASA guidelines (ASA, 2020). In line with the considerations of Nocite (2020), preanesthetic evaluation not only determines the most appropriate technique, but also identifies potential medical complications. The objective of this integrative review is to investigate the effectiveness of preanesthetic evaluation in reducing perioperative risks and complications by searching electronic databases, including PubMed, Lilacs, and Google Scholar, with articles published from 2020 to 2024. To define the research question, the PICO (Population, Phenomenon, Context) strategy was used. The reviewed studies justify the importance of preanesthetic evaluation in reducing perioperative complications, associated with the routine implementation of APA in preoperative services. APA not only improves perioperative prognosis but also reduces overall procedure costs by preventing surgery cancellations and optimizing the use of hospital resources. The creation and implementation of hospital protocols are crucial to maximize the financial and clinical benefits of preanesthetic evaluation. Considering the challenges in the implementation of the guidelines, it is suggested to investigate the reasons for non-compliance with the recommendations, with a view to improving clinical practice and promoting a more comprehensive and effective preanesthetic evaluation.

Keywords: Preanesthetic evaluation; Perioperative and Risk Reduction.

INTRODUCTION

Pre-anesthetic assessment (PAE) is an essential process that aims to ensure the safety and well-being of patients before, during, and after surgical procedures, as highlighted by Zheng SH and Mei XP in their study on the pre-anesthesia clinic. This assessment determines the ability of patients to tolerate anesthesia and identifies the specific risks associated with each case, allowing the selection of the most appropriate anesthetic methods and the development of personalized plans to optimize anesthetic risk management (Zheng SH, Mei XP, 2021).

Therefore, the PAE plays a crucial role in ensuring the safety and efficacy of surgical procedures. As recommended by Resolution 2,174, of December 14, 2017, of the Federal Council of Medicine (CFM), this assessment aims to identify risk factors and clinical conditions that may influence the anesthetic and surgical outcome, contributing to the reduction of perioperative complications. This approach is based on national and international guidelines, such as those established by the American Society of Anesthesiologists (ASA), which provide a structured framework for assessing the patient's health status prior to the administration of anesthesia (ASA, 2020).

A correct preanesthetic assessment is crucial to guide the selection and planning of the appropriate anesthetic technique. It is essential to understand that the choice of this technique should not be based solely on the anesthesiologist's familiarity with a particular practice, as was often stated in the past. Instead, the professional must be able to perform several practices and apply them according to the indications arising from the preoperative assessment, which is essential to identify potential complications or medical conditions that may affect the outcome of the surgery. This understanding is in line with the considerations of Nocite (2020) in his article

“Preanesthetic Assessment” published in the Brazilian Journal of Anesthesiology. Nocite emphasizes the importance of pre-anesthetic assessment not only in determining the most appropriate anesthetic technique, but also in identifying possible complications or medical conditions that may influence the outcome of the surgical procedure.

The aim of this integrative review is to investigate the effectiveness of pre-anesthetic assessment in reducing perioperative risks and complications. In addition, we aim to provide a comprehensive analysis of the available evidence on the importance and impact of pre-anesthetic assessment in clinical practice, exploring its direct effect on perioperative outcomes, such as anesthetic complications, adverse events during surgery and in the postoperative period. This investigation aims to provide clear evidence on the relevance of this practice in the safety and quality of surgical care.

METHODS

This integrative review study was conducted to analyze the existing literature on pre-anesthetic assessment and its impact on reducing perioperative risks and complications. To structure our analysis, we used the PICO strategy as a methodological tool to guide our investigation.

The review was guided by the following question: “In patients undergoing surgery (P - patients), what is the effect of preanesthetic assessment (I - intervention) compared with surgeries in which patients did not receive this assessment (C - comparison), on reducing perioperative risks and complications (O - results/outcomes)?”

To identify studies addressing the topic, we conducted searches in electronic databases, including PubMed, Lilacs and Google Scholar. The search was not restricted by language or publication date. We used the following se-

arch terms: “pre-anesthetic assessment”, “perioperative” and “risk reduction”, with articles published between 2020 and 2024. These keywords were chosen to ensure the scope of the search and to capture studies that addressed relevant aspects of pre-anesthetic assessment, the perioperative period and risk reduction in surgeries.

In selecting the articles, the inclusion criterion was the relevance of the content to the topic of pre-anesthetic assessment and its relationship with surgery. We chose articles that offered significant insights into the importance of pre-anesthetic assessment in reducing these risks. On the contrary, the exclusion criterion adopted during the selection of articles was the lack of a specific approach to pre-anesthetic assessment and its interaction with this reduction and the surgical process.

Initially, we proceeded to select the articles by analyzing the titles, followed by evaluating the abstracts and, finally, by reading the results, discussions and conclusions of the papers, aiming to verify their relevance to the main objective of this study, as mentioned in the establishment of inclusion of the articles. Thus, we included literature review articles, dissertations and experimental and investigative studies. Of the 1,048 articles initially identified by the search strategy, we applied inclusion and exclusion criteria, resulting in the removal of 977 articles, and, consequently, 71 articles were selected for detailed evaluation of their titles and abstracts. Of these, 17 were kept for reading, of which 09 were later excluded after a more in-depth analysis and complete reading. After applying the eligibility criteria, a final sample of 08 studies was identified. The process of identifying, examining, determining eligibility and including articles is illustrated in Figure 1, following the Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2020)

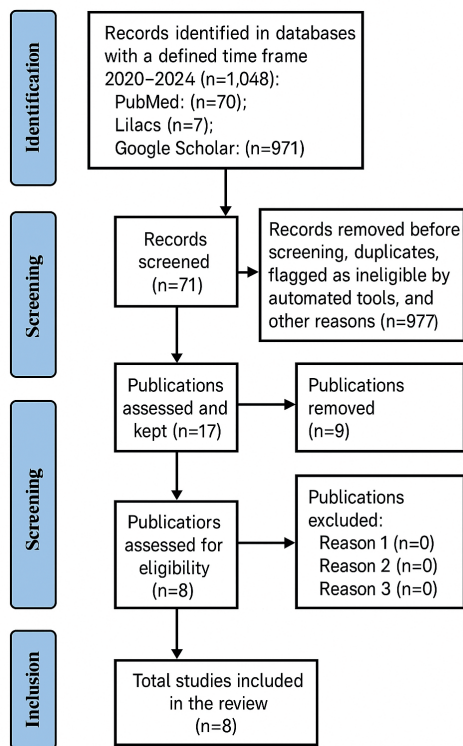


Figure 1 - Visual representation of the integrative review search process. Flowchart (PRISMA 2020) for updated reviews, covering research in databases, registries and other sources. Selection of articles indexed between the years 2020 to 2024.

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Therefore, the collection of selected articles was performed using an instrument adapted to meet the specific objectives of this study, as described in Table 1 and validated by Ursi and Galvão (2006). Given that this work is a literature review, evaluation by the Research Ethics Committee was not required. In this context, the scope of the research did not involve con-

ducting experiments on humans or animals, since it is based on the analysis and synthesis of previously published studies. Thus, the ethical and legal aspects related to authorship were fully observed throughout the review process. All ethical and legal aspects related to authorship were strictly observed. Furthermore, none of the authors involved has any connection with the funding institution, eliminating any potential conflict of interest.

RESULTS

Eight works (Table 2) were chosen to compose the data gathered in this article, including literature reviews, dissertations, and experimental and investigative studies, which were published between 2020 and 2024.

DISCUSSION

Bierle et al. (2020) conducted a study on pre-anesthetic assessment before non-cardiac surgeries, highlighting its crucial importance in preparing patients for surgical procedures. They highlight the need to perform specific tests to identify conditions that may increase risk during the procedure. These tests include screening for infections and nutritional assessment, which are considered essential to ensure patient safety during surgery and avoid complications. They emphasize the importance of a personalized approach adapted to the underlying medical conditions of special populations, such as geriatric patients and those with chronic liver disease. They argue that this individualization of the assessment process is crucial to ensure patient safety and well-being in the perioperative period.

The emphasis on this assessment is reinforced by the review by Chiaratto et al. (2022) that highlights the importance of pre-anesthetic assessment in preoperative preparation, evidencing its contribution to the accurate classification of anesthetic risk. This approach not only reduces perioperative complications but also improves postoperative management, potentially reducing costs associated with the procedure.

Título	Autor	Ano	Resultados / Conclusão
Preoperative Evaluation Before Noncardiac Surgery	Bierle DM; Raslau D; Regan DW; Sundsted KK & Mauck KF.	2020	This paper highlights the importance of pre-anesthetic assessments, emphasizing the need to classify risks and implement measures to reduce them, as well as highlighting the importance of pre- and postoperative interventions. Its emphasis on reducing modifiable perioperative risk is essential in pre-operative medical optimization, making it crucial to standardize communication and documentation to reduce complications in high-risk patients.
Acute hospital preoperative assessment redesign: streamlining the patient pathway and reducing on-the-day surgery cancellations	Brasil, D., Moss, C., & Blinko, K.	2021	The study showed that the redesign of the acute hospital preoperative assessment led to a significant reduction in day-of-operation surgery cancellations. By implementing 17 integrated interventions, such as early pre-assessment and centralized administrative procedures, patient flow was optimized. This resulted in a consistent decrease in avoidable surgery cancellations, highlighting the effectiveness of the new model in improving clinical and operational outcomes.
Effectiveness of pre-anesthetic assessment clinic: a systematic review of randomised and non-randomised prospective controlled studies.	Kristoffersen EW; Opsal A; Tveit TO; Berg RC & Fossum M.	2022	This systematic review highlights that PACs (Pre-Anesthesia Evaluation Programs) improve the quality and safety of care, reducing length of hospital stay and surgical cancellations. They better prepare patients, avoid unnecessary tests, and increase perioperative safety. It is indicated that routine preoperative tests are often unnecessary, and PACs help to reduce mortality and complications, in addition to optimizing hospital resources. Although the quality of the studies in the article is low, the evidence suggests that PACs are beneficial and require further research.
The importance of pre-anesthetic evaluation during preoperative preparation	Chiaratto, H. J. de A. N., Lima, P. I. M. de, Mercês, L. P. das, & Zimmerli, S. Ângela T.	2022	This literature review demonstrated that during the pre-anesthetic consultation, it is possible to classify the anesthetic risk, improve the surgical procedure, and reduce complications and mortality. Furthermore, the implementation of this practice is directly associated with the improvement of the postoperative prognosis and the reduction of costs related to the procedure.
Importance of Pre-anesthetic Evaluation in Diagnosing Coexisting Asymptomatic Medical Conditions: A Report of Two Cases.	Alanzi A, Ghazzal S, Abduljawad S, Ghuloom A, Fouad A, Adeel S.	2023	The study, through two clinical cases, illustrates the importance of pre-anesthetic evaluation. The discussion of these cases highlights the importance of these evaluations in the diagnosis and management of asymptomatic medical conditions, contributing to improving the safety and effectiveness of perioperative care.
Malnutrition risk in elective surgery patients and effectiveness of preoperative nutritional interventions at a pre-anaesthetic clinic: a 4-year apart, single-centre, observational study.	Kutnik P; Wichowska O; Sysiak-Sławecka J; Szczukocka M; Rypulak E; Piwowarczyk P; Borys M & Czuczwar M.	2023	The authors conducted an observational study with patients in the pre-anesthesia clinic scheduled for elective surgery, aiming to assess nutritional support before the consultation and to audit changes in the nutritional status of patients. The study also verified the feasibility of preoperative nutritional support to reduce the risk of postoperative complications. The pre-anesthesia consultation is essential to detect and manage reversible conditions before surgery, and in this situation, nutritional assessment and support depend on an adequate history and anthropometric measurements.

The impact of outpatient pre-anesthetic evaluation in a tertiary hospital - an experience report.	Prado, Arthur Antunes	2024	The study's conclusion reveals that the implementation of the pre-anesthetic assessment clinic resulted in a significant reduction in the cancellation of surgeries due to inadequate clinical conditions. Improving patient preparation, through early identification and treatment of problems before surgery, contributed to improving safety, avoiding potential complications, in addition to increasing the quality of care and, consequently, reducing costs.
Prognostic importance of preoperative electrocardiogram in low-risk patients undergoing surgical intervention under general anesthesia.	Ramos, L; Coutinho, A. C; Rebelato, J; Ramos, M. V; Elly, E.; Amoedo, P; Viel, G., & Moises, V. A.	2024	This prospective, randomized study evaluated the need for preoperative ECG in patients over 50 years of age, without comorbidities, undergoing elective surgeries under general anesthesia. The results showed that preoperative ECG does not offer significant benefits in predicting in-hospital postoperative complications, questioning the routine practice of requesting this exam based solely on age.

The study by Kutnik et al. (2023) highlights the importance of preanesthetic assessment for patients undergoing elective surgeries, especially with regard to the detection and management of nutritional deficiencies. The results highlight that preoperative nutritional support can be crucial in reducing postoperative complications resulting from these deficiencies.

The analysis conducted by Kristoffersen et al. (2022) reveals that Preanesthetic Assessment Programs (PACs) are effective in improving the quality and safety of preoperative care. By reducing hospitalizations and surgery cancellations, these programs optimize hospital resources as mentioned by Chiaratto et al. (2022) and Kutnik et al. (2023). They also minimize the need for unnecessary tests, reducing perioperative complications and mortality. Although the authors report some limitations in the reviewed studies, the evidence suggests that PACs are beneficial, highlighting the importance of further research to further improve clinical practice. Alanzi et al. (2023) corroborate these findings by Kristoffersen et al. (2022), emphasizing the relevance of preoperative evaluation in reducing complications and mortality during the perioperative period, and especially highlighting the crucial role of preanesthetic evaluation clinics (PACs) in

identifying health problems. Despite medical advances, the study points out that the lack of adequate preoperative evaluation still results in higher rates of complications. The authors highlight the importance of cardiac evaluation before surgery and the continued use of ECG to identify cardiovascular risks. In addition, the usefulness of preoperative evaluation in the early detection of asymptomatic health problems, such as hypothyroidism, is highlighted, highlighting its positive impact on surgical outcomes. On the other hand, the study by Ramos et al. suggests that cardiac assessment before surgery and the continuous use of ECG may not be justified in all cases, in contrast and complement to the study by Alanzi et al. (2023), especially in low-risk patients, indicating the need for an individualized and careful assessment before surgery, aiming to avoid unnecessary procedures in the pre-anesthetic period, reduce costs, improve outcomes and the patient experience during the perioperative period.

It was also found with the results presented by Prado (2024) that the introduction of pre-anesthetic assessment resulted in a notable reduction in surgery cancellations due to previously unidentified medical problems. In addition, it is demonstrated that improving

patient preparation, by detecting and treating any issues in advance before surgery, not only improved safety, preventing potential perioperative complications, but also increased the quality of care, leading to a reduction in costs associated with treatment, reinforced by the previous authors.

In line with the study by Prado (2024), the proposal by Brasil, Moss and Blinko (2021) to remodel the preoperative evaluation process in acute hospitals indicated in its results a significant reduction in the number of surgery cancellations on the day of surgery after the implementation of new measures. They suggest that these measures are simple and can have a significant impact on operational efficiency and the quality of patient care, showing this significant reduction in the number of surgery cancellations after the implementation of these measures.

CONCLUSION

The studies in this integrative review provide an evidence base that justifies the relevance of pre-anesthetic assessment in reducing perioperative risks and complications, when considering the contrast between patients undergoing surgery who do not undergo this assessment and those who do. When analyzing the results and discussion, it is clear that prior assessment of the patient's health status before anesthesia and surgery plays a fundamental role in identifying potential medical problems and underlying conditions.

Likewise, the routine implementation of Pre-Anesthetic Assessment (PAE) in all surgical services is essential. This practice is not only associated with improved perioperative prognosis, but also with reduced overall costs of the procedure. Furthermore, by performing a thorough assessment of the patient, it is possible to avoid performing additional tests that are not essential, as evidenced in the studies, thus adjusting the clinical investigation accor-

ding to the individual needs of each patient, thus reducing risks and complications, but also promoting more effective and patient-centered hospital management.

The articles also addressed the financial issue and the reduction of surgery cancellations for patients who undergo pre-anesthetic evaluation. This demonstrates how this practice contributes to the efficient management of hospital resources, in addition to improving patient care. Pre-anesthetic evaluation allows problems to be identified early, reducing last-minute cancellations and optimizing the use of the surgical center, beds and medical teams.

In order to fully achieve these benefits, it is essential to establish specific hospital protocols for the implementation of pre-anesthetic evaluation. Such protocols ensure that all patients are evaluated, allowing early detection of possible complications and adequate preparation for surgery. Standardizing procedures also facilitates coordination between different medical and administrative teams, improving operational efficiency and the quality of care. Thus, the creation and implementation of hospital protocols are essential to maximize the financial and clinical benefits of pre-anesthetic evaluation, which were also observed in the analysis of the studies.

Finally, considering the problems that were presented in the review, a suggestion for continuing the studies would be to investigate the reasons why pre-anesthetic evaluation is not always performed according to the recommendations established by the councils and may also involve a comprehensive analysis of the challenges and obstacles faced by health professionals in implementing the guidelines.

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