PalStudent Journal
A Palestinian Scientific Journal for the Youth

ABSTRACTS: VOLUME 7, SPECIAL ISSUE {7th Undergraduate Conference}

ABSTRACT

Analysis of post-operative shivering following anesthesia: prevalence, predictors and intervention, a cross-sectional study in Palestine.

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Background: The post-anesthesia care period is a critical phase within hospital surgical suites and ambulatory care centers, where the post-anesthesia care unit (PACU)takes center stage. postoperative shivering, a common complication associated with anesthesia, manifests as involuntary, rhythmic muscle movements during the initial stages of anesthesia recovery. shivering, which includes facial, jaw, or head fasciculation or muscle hyperactivity lasting over 15 seconds, remains a prevalent concern in postoperative care.

Objective: The aim of the study to determine the prevalence of post-operative shivering, its risk factors, and the optimal intervention in patients undergoing anesthesia to improve surgical outcomes.

Methodology: This was an observational cross-sectional study including 458 surgical patients aged 18 years and above, of both sexes. Participants were recruited consecutively from four hospitals in Nablus: An-Najah National University Hospital, Rafidia Hospital, Ittihad Hospital, and the Specialized Arab Hospital, between October 2023 and June 2024. Data were collected in three stages—before, during, and after surgery—using a structured questionnaire completed by

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the research team. The questionnaire gathered demographic data, surgical and anesthetic details, and post-operative outcomes. All information was collected confidentially and securely.

Result: The study identified significant associations between postoperative shivering and various sociodemographic factors, including gender, marital status, education level, employment status, and income. These findings highlight the importance of considering patient demographics in understanding and addressing postoperative shivering.

Shivering was also significantly related to surgical procedure characteristics. Obstetric surgeries showed the highest incidence and duration of shivering, while no cases were reported in neurosurgical procedures. The type and classification of surgery (minor, intermediate, major) had a clear impact, with intermediate surgeries exhibiting the highest rates. ASA classification influenced shivering, especially in ASA II patients. Additionally, both premedication and preoperative fluid administration were associated with increased incidence and variable durations of shivering, underlining their potential role in its management.

Furthermore, anesthesia-related factors were significantly associated with shivering. Regional anesthesia resulted in a higher incidence and longer duration compared to general anesthesia. Spontaneous ventilation was linked to the highest shivering rates. Patient positioning during surgery, particularly in the supine and sitting positions, also affected incidence. The use of Ringer Lactate as intraoperative fluid led to more frequent shivering. Among heating methods, warm fluids were linked to the longest duration of shivering, while the bear hugger method showed the lowest incidence and shortest duration. These findings emphasize the multifactorial nature of postoperative shivering and the importance of integrated management strategies.

Conclusions: According to the study, improving patient care requires determining and treating the risk factors for post-operative shivering. The physiological and psychological effects of shivering can be reduced by healthcare professionals through the use of focused treatments and efficient preventive measures, which will improve surgical outcomes and recovery times. It is advised to do additional study to examine potential preventive measures and to provide uniform

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guidelines for the management of post-operative shivering. Ultimately, the therapy of post-operative shivering improves patient comfort and recovery after surgery, and this can only be achieved through a multidisciplinary strategy that takes into account both clinical and socioeconomic considerations.

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