

The Correlation between Head of Bed Angle and IntraAbdominal Pressure of Intubated Patients; a Pre-Post Clinical Trial

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Abstract : Introduction: The recommended position for measuring Intra-Abdominal Pressure (IAP) is the supine position. However, patients put in this position are prone to Ventilator-associated pneumonia. This study was done to evaluate the relationship between bed head angle and IAP measurements of intubated patients in the intensive care unit. Methods: In this clinical trial, seventy-six critically ill patients under mechanical ventilation were enrolled. IAP measurement was performed every 8 hours for 24 hours using the KORN method in three different degrees of the head of bed (HOB) elevation (0°, 15°, and 30°). Bland-Altman analysis was performed to identify the bias and limits of agreement among the three HOBs. According to World Society of the Abdominal Compartment Syndrome (WSACS), we can consider two IAP techniques equivalent if a bias of <1 mmHg and limits of agreement of - 4 to +4 were found between them. Data were analyzed using SPSS statistical software (v. 19), and the significance level was considered as 0.05. Results: The prevalence of intra-abdominal hypertension was 18.42%. Mean \pm standard deviation (SD) of IAP were 8.44 ± 4.02 mmHg for HOB angle 0°, 9.58 ± 4.52 for HOB angle 15°, and 11.10 ± 4.73 for HOB angle 30° ($p = 0.0001$). The IAP measurement bias between HOB angle 0° and HOB angle 15° was 1.13 mmHg. This bias was 2.66 mmHg between HOB angle 0° and HOB angle 30°. Conclusion: Elevation of HOB angle from 0 to 30 degree significantly increases IAP. It seems that the measurement of IAP at HOB angle 15° was more reliable than 30°.

Keywords : pressure, intra-abdominal hypertension, head of bed, critical care, compartment syndrome, supine position

Conference Title : ICN 2024 : International Conference on Nursing

Conference Location : Istanbul, Türkiye

Conference Dates : July 29-30, 2024