

# Effect of Different Endotracheal Suctioning Systems on Cardiorespiratory Parameters of Ventilated Patients

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## Abstract

**Introduction:** We conducted this prospective randomised cross-over study to evaluate the effect of closed system (CS) versus open system (OS) endotracheal suctioning on heart rate (HR), mean arterial pressure (MAP), respiratory rate (RR), oxygen saturation (SpO<sub>2</sub>) and electrocardiogram (ECG) rhythm of patients on mechanical ventilation. **Materials and Methods:** Fourteen adult patients were randomly allocated to receive either CS or OS suctioning in the first instance. For the subsequent suctioning, they were crossed over to the alternate suctioning system. The various cardiorespiratory parameters were recorded at BL1 (baseline 1), S1 (first suction pass), BL2 (baseline 2, i.e. immediately post first suction pass), S2 (second suction pass), T2 (2 minutes post suction) and T5 (5 minutes post suction). **Results:** Compared to CS, OS suctioning was found to result in higher HR at S1 (P ≤ 0.05) and S2 (P ≤ 0.05); higher MAP at BL2 (P ≤ 0.05); lower SpO<sub>2</sub> at BL2 (P ≤ 0.01) and S2 (P ≤ 0.01). There was no significant difference in RR between the two suctioning systems. OS suctioning was also noted to result in a significantly higher incidence of arrhythmia (P ≤ 0.05). **Conclusion:** Our study shows that OS suctioning results in more adverse changes in cardiorespiratory parameters compared to CS suctioning.

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**Key words:** Atelectasis, Closed system, Haemodynamic stability, Hypoxaemia, Open system

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