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Original Article

Effect of Open and Closed System Endotracheal Suctioning on Vital Signs of ICU Patients

Zolfaghari* M (MSc.) - Nikbakht Nasrabadi** A (Ph.D) - Karimi Rozveh *** A (MSc.) - Haghani**** H (MSc.).

* Lecturer, Medical and Surgical Nursing Department, Faculty of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran.

** Associate Professor, Faculty of Nursing and Midwifery, Tehran University of Medical Sciences,

*** Nursing staff .General ICU, Shariati Hospital, Tehran University of Medical Sciences Tehran, Iran.

**** Lecturer, Biostatistics Department, Faculty of Management and Information Technology, Iran University of Medical Sciences, Tehran, Iran.

Corresponding Author:

Zolfaghari M

e-mail: zolfaghm@sina.tums.ac.ir

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Abstract:

Background & Aim: Nowadays, mechanical ventilators are being used for some patients in ICUs due to various physiological and clinical causes. Keeping endotracheal tube clean and open is necessary in order to improve the patient's oxygenation. This study aimed to investigate the effects of open and closed system endotracheal suctioning on vital signs of patients in ICU.

Methods & Materials: In this quasi-experimental study, 40 patients from Shariaty Hospital's ICU were selected using convenience sampling method. Data was collected using a record sheet. The sheet consisted of demographic characteristics and vital signs including blood pressure, mean arterial blood pressure, heart rate, respiratory rate, and arterial blood oxygen saturation percentage. Endotracheal suctioning was done randomly in 90 minute intervals once using closed method and once using open method. All patients were hyper oxygenated by Ambo bag for 2 minutes before and after the procedures. The patients' vital signs were checked and recorded using SIEMENS 680 2xi monitor before, and 2 minutes and 5 minutes after the procedures. Data were analyzed using SPSS software.


Results: Systolic and diastolic blood pressures, and heart rate showed higher increase 2 and 5 minutes after the open method compared to close method ($P<0.001$). Arterial blood oxygen saturation percentage reduced in the open method more than in the closed one 2 and 5 minutes after the procedure ($P<0.001$). No significant difference was seen in the patients' respiratory rate in two methods ($P>0.05$).

Conclusion: Closed endotracheal suction system results in lower disturbances in the vital signs than the open system. Therefore, for better results, the closed endotracheal suctioning is suggested.

Keywords:

Close Suctioning, Open suctioning, Vital Sign

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