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Study the Relationship of Underweight and the Length of Invasive Mechanical Ventilatory Support on a patient after Open Heart Surgery

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Introduction

Prolong use of invasive mechanical ventilation is one of major problems in open heart surgery. Problems arising from prolong invasive ventilation contribute increasing risk of complication and length of stay in ICU after open heart surgery.

In clinical experience, underweight patients who received open heart surgery prone to be more vulnerable to respiratory distress. They need more time for invasive ventilator support after surgery, or develop respiratory fatigue and require non-invasive or invasive mechanical ventilator support after extubation.

Objectives

To find out the relationship between underweight and the time of invasive mechanical ventilation use.

Methodology

We included 12 candidates who had undergone elective open heart surgery without unexpected conditions postoperatively. 6 candidates are underweight with BMI less than 18.5 and another 6 candidates are non-underweight with BMI greater than 18.5. The time of use invasive mechanical ventilation is recorded in all candidates. . It starts from the time arriving ICU from OT and terminates at the time of extubation. Hours will be the measuring unit for counting the time of use invasive mechanical ventilation.

Result

T-statistic is used for testing significant differences between two groups. The mean duration of using invasive ventilation for underweight patients is 10.58 hours(range 4-22 hours), 5.04 hours(range from 4-6 hours) for non-underweight patients, t-value 1.95313. According to the t statistic table, the P-value at 0.05, the critical value for significance is 2.228, and 1.812 is obtained when P=0.1. The result between two groups of patients are significantly different.

The study demonstrates underweight patients being prone to require longer duration

of invasive ventilator support comparing with non-underweight patients. Although the sample size is small due to limited time frame for data collection and strict candidate selection criteria, it still deserves to pay attention on those underweight patients who received open heart surgery because they require longer time for using invasive ventilation and they are vulnerable group on suffering from complications of mechanical ventilatory support. Topping up nutrition before operation on these patients can be considered because they might be benefit on decreasing hours of invasive ventilator support. Further study on this aspect should be considered.