

The Ideal Body Weight Calculator (IBW): A Completed Audit Cycle

Susan Stevenson ST5, Ashwini Virgincar FY2, Jeremy Sizer Consultant
Bedford Hospital

Protective ventilation is recommended for all patients requiring mechanical ventilation¹. Low tidal volumes, 6-8ml/kg based on the Ideal body weight (IBW), are associated with better outcomes in both patients ventilated for respiratory failure² and non-respiratory indications³. However, tidal volumes are frequently based on total body weight (TBW) and therefore overestimated. Through the introduction of an automatic IBW calculator in patient electronic notes, we sought to improve compliance with protective ventilation strategies.

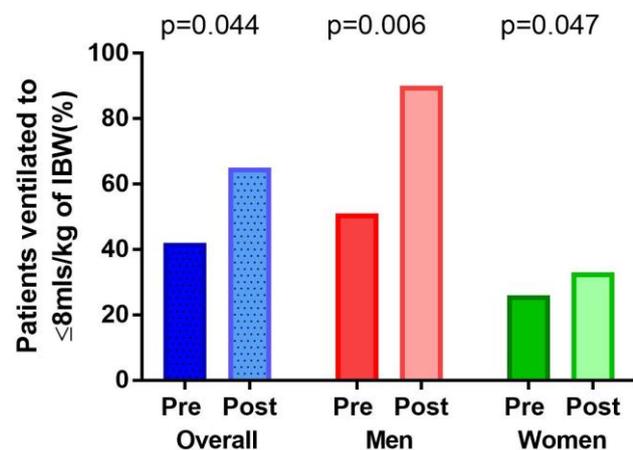
Methods

We reviewed electronic notes (Metavision[®]) of 50 consecutive patients requiring ventilation through an endotracheal tube. We recorded documentation relating to height, weight, IBW and the mean tidal volume received during a mandatory mode of ventilation. The IBW was calculated using the Devine formula. Patients were dichotomised into those receiving tidal volumes of either ≤ 8 ml/kg or > 8 ml/kg, based on their IBW. We subsequently introduced the automatic IBW calculator and re-audited its effect in 29 patients. The groups before and after this intervention were compared statistically using the chi squared test.

Results

During the first audit loop, we found no patient had an IBW documented in their notes. This subsequently increased to all patients with the introduction of the calculator.

In terms of tidal volume, the graph shows the percentage of patients compliant with a tidal volume ≤ 8 ml/kg, pre and post intervention. There was a statistically significant increase in the proportion of all patients receiving a protective ventilation strategy. This was more pronounced in Males compared to Females.



Discussion

Low tidal volume ventilation remains one of the few interventions associated with a reduction in mortality in intensive care. Despite this, adherence to this approach remains low. The improvement seen in compliance with protective ventilation strategies was seen without the requirement for active promotion. Future audit cycles will confirm the persistence of this improvement in quality.

References

1. Guidelines for the Provision of Intensive Care Services (GPICS). 2015 Edition
2. ARDSnet. Ventilation with Lower Tidal Volumes as Compared with Traditional Tidal Volumes for Acute Lung Injury and the Acute Respiratory Distress Syndrome. 2000. *NEJM* 342:1301-1308
3. Futier et al (2013) IMPROVE A Trial of Intraoperative Low-Tidal-Volume Ventilation in Abdominal Surgery *NEJM* 369: 428-437