ABSTRACT

Background
Mechanical ventilation is important in caring for patients with critical illness. Clinical complications, increased mortality, and high costs of health care are associated with prolonged ventilatory support or premature discontinuation of mechanical ventilation. Weaning refers to the process of gradually or abruptly withdrawing mechanical ventilation. The weaning process begins after partial or complete resolution of the underlying pathophysiology and ends with weaning success (successful extubation in intubated patients or permanent withdrawal of ventilatory support).

Objectives
To evaluate the effectiveness and safety of two strategies, a T-tube and pressure support ventilation, for weaning adult patients who have undergone upper abdominal surgeries requiring mechanical ventilation for at least 12 hours measuring weaning success and other clinically important outcomes.

Selection criteria
We included randomized controlled trials (RCTs) that compared a T-piece with pressure support (PS) for the conduct of spontaneous breathing trials and as
methods of gradual weaning of adult patients who have undergone upper abdominal surgeries requiring mechanical ventilation for at least 12 hours

**Pressure support versus T-piece ventilation for weaning from mechanical ventilation in adults**

**Data collection and analysis**

I extracted data and assessed the methodological quality of the included studies. Meta-analyses using the random-effects model were conducted for nine outcomes. Relative risk (RR) and mean difference (MD) or standardized mean difference (SMD) were used to estimate the treatment effect, with 95% confidence intervals (CI).

**Main results**

We included nine RCTs with 60 patients; 30 patients were randomized to a Pressure support ventilation with spontaneous breathing trial (SBT) and 30 patients with T-piece ventilation with SBT. First group of patients are maintained in CPAP-PSV mode, but Pressure support is decreased gradually from 15cmH2O to 12cmH2O, then 10cmH2O, again to 8 cmH2O, patient observed Spontaneous breathing trial with CPAP-PSV mode with pressure support of 8cmH2O, analysed with hemodynamic monitoring and ABG, patient is extubated. In the second group, patients changed from CPAP-PSV with Pressure support 15cm H2O to
Spontaneous breathing trial with T-Piece with 6 Litres of O2/min, then the patient observed analysed with hemodynamic monitoring and ABG, patient is extubated. Both the groups were compared. With regard to the sequence of allocation generation, allocation concealment, selective reporting and attrition bias, no study presented a high risk of bias. I found that

- Mean heart rate was lower in PSV group than T piece group which was statistically significant.

- Mean systolic blood pressure was lower in PSV group than T piece group which was statistically significant.

- Mean diastolic blood pressure was lower in PSV group than T piece group which was statistically significant.

- Mean SPO2 was better in PSV group than T piece group which was statistically significant.

- Mean ETCO2 was lower in PSV group than T piece group which was statistically significant.

- Mean PH was better in PSV group than T piece group which was statistically significant.
• Mean PaO2 was higher in PSV group than T piece group which was statistically significant.

• Mean PaCO2 was lower in PSV group than T piece group which was statistically significant.

• Mean duration of Mechanical ventilation was lower in PSV group than T piece group which was statistically significant.

• Reintubation was lower in PSV group than T piece group which was statistically significant.

**Author’s conclusions**

Weaning the patients from mechanical ventilator who have undergone upper abdominal surgeries can be done by Pressure support ventilation or by T piece with O2-6L/min. Considering the better hemodynamic stability, gas analysis, less duration of mechanical ventilation, lesser incidence of reintubation, I conclude pressure support ventilation is superior in weaning the patient from mechanical ventilator than T-piece ventilation.