

The Role of Prone Ventilation in the Management of Acute Respiratory Distress Is Difficult

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Abstract

Prone ventilation (PV) has been used for almost four decades in patients with acute lung injury (ALI) and acute respiratory distress syndrome (ARDS). It improves oxygenation by recruiting more alveoli, reducing atelectasis, and possibly facilitating positional drainage [1]. Meta-analyses suggested survival benefits of PV only in patients with severe hypoxemia [2,3]. A recently published study, Proning Severe ARDS Patients (PROSEVA), is the first randomized controlled trial (RCT) that showed survival benefits in severely hypoxemic ARDS patients. The 28 and 90-day mortality rates were significantly lower with PV compared with conventional ventilation (hazard ratio 0.39 and 0.44 respectively, $p < 0.001$) [4]. The PROSEVA study differed from previous RCTs in the duration and timing of PV [5-11]. Patient selection may have contributed to the difference in the results. The PROSEVA study recruited patients with the most severe hypoxemia with the mean partial pressure of arterial oxygen to the fraction of inspired oxygen ratio of 100 (Table 1). Intensivists now face the current question of should PV be implemented for every patient who meets the inclusion criteria of the PROSEVA study? In other words, is the PROSEVA study a game changer believing that implementing PV sooner and longer in severely hypoxemic ARDS patients saves more lives?

Meta-regression analysis could be a appropriate tool to assess the association between predictors and outcomes. once all the RCTs square measure pooled and analyzed, age, severity of hypoxemia, period and temporal arrangement of PV, and SAPS II score don't seem to own a major association with the survival good thing about PV (Table 2). Therefore, the distinction in study protocol and patient population of the PROSEVA study might not be the rationale for higher outcomes. The incontestable advantages could have happened out of the blue because of alternative confounders, like Associate in Nursing imbalance of patient characteristics between 2 teams. additionally, once the PROSEVA study was pooled with the previous RCTs, the survival advantages became not vital (Relative risk=0.86 [95% confidence interval zero.72 to 1.02] (Figure 1). A bigger than five hundredth reduction in mortality seen within the PROSEVA study are a few things quite exceptional and unprecedented within the respiratory illness literature. the chance of sort one error can not be excluded.

Most of the clinical studies of PV were conducted in European countries (Table 1) wherever characteristics of social unit patients could

take issue from those within the America. the typical body mass index within the PROSEVA study was twenty nine. It is rumored that as several as twenty fifth of social unit patients square measure fat within the America [12]. emplacement of patients with a body mass index bigger than forty usually needs a minimum of four employees members [13]. though a recent study steered that PV is possible in fat patients and should improve natural action bigger than in non-obese patients [14], implementing PV in morbidly fat patients would be an enormous burden to employees members. Most aforesaid RCTs were conducted in centers older with PV at a minimum of five years. It remains to be seen if identical results is reproduced once PV is enforced in centers wherever fatness is epidemic and employees members aren't older with prone positioning.

Low recurrent event volume ventilation was found to decrease mortality in ALI/ARDS patients that is far easier to implement than PV, however its adoption within the clinical follow has been terribly slow despite its established survival advantages [15]. Adopting PV in respiratory illness patients can doubtless be terribly slow because of its usefulness and unclear dependableness and generalizability of the survival advantages. There square measure solely ten studies registered at Clinicaltrials.gov for PV in respiratory illness as of June 2013. current studies square measure unlikely to answer the on top of question. PV could follow the fate of selective biological process removal that could be a placing example of terribly restricted adoption, particularly within the America, of Associate in Nursing evidence- primarily based medical aid des pite its established survival advantages [16]. The position of PV within the management of respiratory illness patients is by no suggests that clear and a extra time is urgently required. whereas awaiting any proof, a possible surviva

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