

ADAPATIVE SUPPORT VERSUS CONVENTIONAL VENTILATION FOR TOTAL VENTILATION IN PATIENTS WITH MODERATE ACUTE RESPIRATORY DISTRESS SYNDROME

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INTRODUCTION

Adaptive support ventilation (ASV) is a closed loop mode that automatically switch from mandatory pressure control ventilation to pressure-control synchronized intermittent mandatory ventilation or pressure support ventilation, depending on the patient's lung status thereby reducing the work of breathing. We targeted to observe the patients with moderate acute respiratory distress syndrome (ARDS) ventilated with ASV as a sole mode of mechanical ventilation, duration of mechanical ventilation, weaning duration and length of Intensive care unit (ICU) stay.

AIM OF THE WORK

The aim of this study was to compare between ASV and Conventional ventilation as a full ventilation mode in ARDS patients according to total days of mechanical ventilation and weaning success rates.

PATIENTS AND METHODS

The study included 68 adult male and female patients with moderate ARDS who were admitted to the Alexandria Main University Hospital's Critical Care Department. This is a single-center, prospective cohort study.

The patients will be randomly enrolled into one of two protocols:

Group A: patients will be ventilated using ASV in the following steps:

Setting the ideal body weight in Kg.

Setting the physiological Min Vol as being equal to 0.1 L/kg of ideal body weight (IBW).

Min Vol was started at 100% and was adjusted according to the Paco2 levels for passive patients or patient's RR for spontaneously breathing patients.

Group B: patients will be ventilated using P-ACV in the following steps:

Pressure control levels were started at 20 cm H2O and were adjusted to obtain a Vt of 4 to 6mL/kg according to the unit protocol to maintain Plateau pressure <30.

Respiratory rate (RR) was set to 12 up to 30 breaths/min. The inspiratory to expiratory ratio was adjusted by either changing the inspiratory time or RR or both.

RESULTS

Table 1: Comparison between the two groups according to need for reintubation, days of mechanical ventilation (MV) and length of ICU stay

	ASV (n = 34)		PCV (n = 34)		Test of Sig.	P
	No.	%	No.	%		
Reintubation					$\chi^2=$ 5.322*	0.021*
No	27	79.4	18	52.9		
Yes	7	20.6	16	47.1		
Days of MV						
Min. – Max.	2.0 – 8.0		2.0 – 10.0		U= 411.50*	0.038*
Mean ± SD.	3.79 ± 1.72		5.15 ± 2.56			
Median (IQR)	4.0 (2.0 – 5.0)		5.0 (3.0 – 8.0)			
Length of ICU stay						
Min. – Max.	2.0 – 14.0		2.0 – 14.0		U= 562.0	0.843
Mean ± SD.	6.47 ± 3.57		6.62 ± 3.62			
Median (IQR)	7.0 (3.0 – 8.0)		7.0 (3.0 – 8.0)			

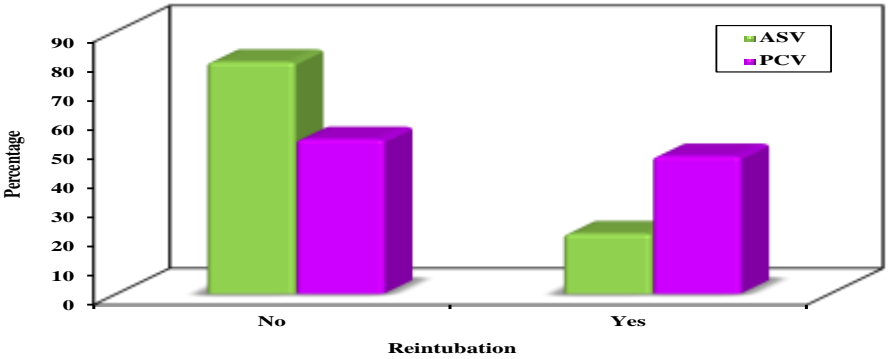


Figure 1: Comparison between the two studied groups according to need for reintubation

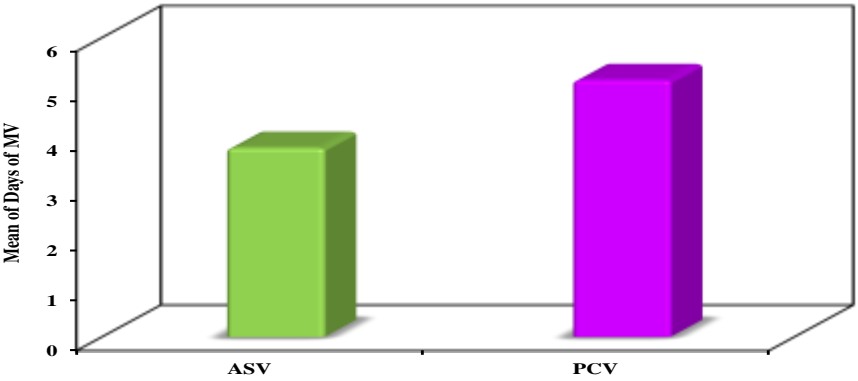


Figure 2: Comparison between the two studied groups according to days of MV

Table 2: Comparison between the two groups according to 7-days and 28-days mortality

Mortality	ASV (n = 34)		PCV (n = 34)		χ^2	P
	No.	%	No.	%		
7 Days						
Non survivors	8	23.5	11	32.4	0.657	0.417
Survived	26	76.5	23	67.6		
28 Days						
Non survivors	12	35.3	16	47.1	0.971	0.324
Survived	22	64.7	18	52.9		

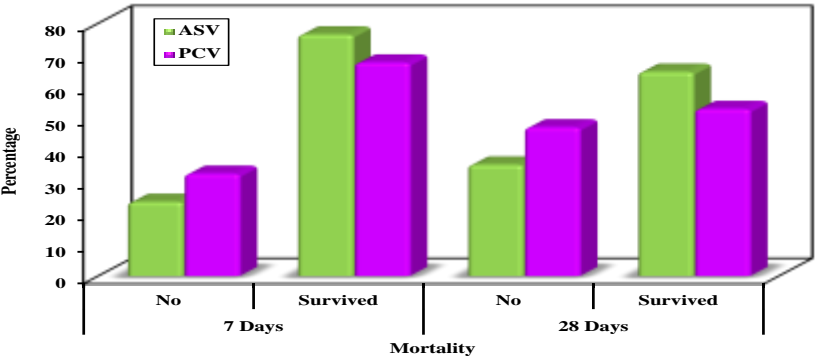


Figure 3: Comparison between the two studied groups according to mortality

CONCLUSION

ASV may be used as a total ventilatory mode in moderate ARDS patients, with the advantage of shorter mechanical ventilation duration.