

EFFECT OF MODE OF VENTILATION ON WORK OF BREATHING - COMPARING SYNCHRONISED INTERMITTENT POSITIVE PRESSURE VENTILATION+VOLUME GUARANTEE AND PRESSURE SUPPORT VENTILATION+VOLUME GUARANTEE

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Background and aims: SIPPV+VG is a time-cycled pressure limited mode of ventilation in which the inspiratory time (itime) and targeted tidal volume is set. PSV+VG is a flow cycled mode of ventilation in which the itime is determined by the infant. PSV+VG may have the advantage of the infant using lower mean airway pressure however this may be at the expense of higher variability peak inspiratory pressures.

Methods: This was a crossover study of infants < 1500g, receiving mechanical ventilation. Each baby was randomised to SIPPV+VG for one hour followed by PSV+VG for one hour or vice versa. 15 minutes was allowed between modes to reduce any crossover effect. After 24 hours the study was repeated in the reverse order if the infant was still intubated. Respiratory, heart rate and oxygen saturation data were collected.

Results: In SIPPV+VG, infants used higher mean airway pressure (MAP) 8.47 vs. 7.28 (cm of H₂O). In PSV+VG, infants had higher peak inspiratory pressure (PIP) 15.99 vs. 14.89 (cm of H₂O), higher minute volume 0.210 vs. 0.197 (l/min) and higher respiratory rate 69 vs. 62 (breaths per minute), all of which were statistically significant. There was greater variability in respiratory rate in PSV+VG. The mean itime was 0.19 second in PSV+VG

Conclusions: There was no increased variability in PIP in PSV+VG. PSV+VG in VLBW infants had the benefit of reduced MAP, but had an undesirable influence on PIP. The increased respiratory rate seen in PSV+VG could be evidence of increased work of breathing.