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**Title:** Effect of high-flow nasal cannula on nasopharyngeal airway pressure, respiratory muscles loading and respiratory distress symptoms in young infants with severe acute viral bronchiolitis

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**Body:** Objective: To determine the efficacy of high-flow nasal cannula (HFNC) at different flow level on respiratory distress symptoms, nasopharyngeal airway pressure (NAP) and respiratory effort in young infants with acute respiratory syncytial virus bronchiolitis. Patients: 21 less than six month/old infants, with severe respiratory distress. Interventions: Oesophageal pressure (Pes) and NAP was measured simultaneously after 5 different flow of 1,4,6 and 7 l/mn delivered through a HFNC. Measurements and results: Respiratory distress was quantified with a specific scoring system (m-WCAS). Mean respiratory rate (RR), inspiratory time over total time or respiratory cycle (Ti/Tot), NAP, Swing Pes and respiratory effort with the Pes-derived inspiratory muscles pressure-time product (PTPes) was calculated from the pressure curves. Results are presented in Table 1.

Effect HFNC at 1,4,6 and 7 l/mn on respiratory parameters.

flow	1l/mn	4l/mn	6l/mn	7l/mn	p
NAP (cmH20)	0,2 (0,9)	1,7 (1,3)	3,7(2)	4 (2)	0,0001
Swing Pes (cmH20)	24(12)	20(10)	14(7)	15(7)	0,0003
PTP/mn (cmH20/mn)	546 (330)	425 (237)	312 (162)	289 (166)	0,0002
RR (breath/mn)	81 (16)	75 (14)	65 (12)	65 (15)	0,01
Ti/Tot	0,43 (0,9)	0,42(0,1)	0,35(0,1)	0,36(0,1)	0,002
mWCAS	2,3 (1)	2 (1)	1 (1)	1 (1)	0,0006

**Conclusion:** In young infants with severe acute respiratory syncytial virus bronchiolitis NAP progressively increase with flow delivery through HFNC. We observed a negative correlation between flow delivery, NAP

and PTPes. HFNC are able to increase NAP, decrease PTPes and improve ventilatory function of infant with severe acute viral bronchiolitis. Funding by APARD and CHU Montpellier.