

The effect of a chin strap when using CPAP in neonates

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For nasal continuous positive airway pressure (CPAP) to be effective, there must be transmission of pressure from the nose through to the larynx. Release of pressure from the pharynx and out through the mouth will limit the effectiveness of CPAP. A pharyngeal pressure seal can perhaps be optimised if the mouth is kept closed, and one way of achieving this is with a chin strap.

Aim

The aim was to measure the effect that a chin strap has on the transmission of pressure from the nose through to the pharynx.

Method

Ten premature infants requiring CPAP, but on minimal oxygen supplementation, were recruited after informed consent was obtained from their parents. An air-filled, size 8 French feeding catheter was introduced to the pharynx with the tip placed just above the larynx and the other end attached to a pressure transducer. The CPAP was supplied by an EME Flow Driver and the CPAP pressure measured through a pressure transducer attached to the CPAP pressure line by a Y-arm. The flow rate of the flow driver was adjusted before the start of monitoring to deliver a CPAP pressure of 5 cm H₂O pressure, and the flow rate was thereafter left unchanged. A nonelastic chin strap was used and attached to the CPAP hat with elastoplast. Babies were randomised to have the chin

strap either first or second while being monitored for an hour with the chin strap on and an hour with the chin strap off.

Results

The average pharyngeal pressure was higher ($p < .05$) with the chin strap on (4.02 cm H₂O) than with it off (2.52 cm H₂O).

Conclusions

In premature infants a chin strap makes a significant difference to the transmission of CPAP pressure to the lungs. Further research is warranted to determine whether this leads to significantly improved clinical outcomes.

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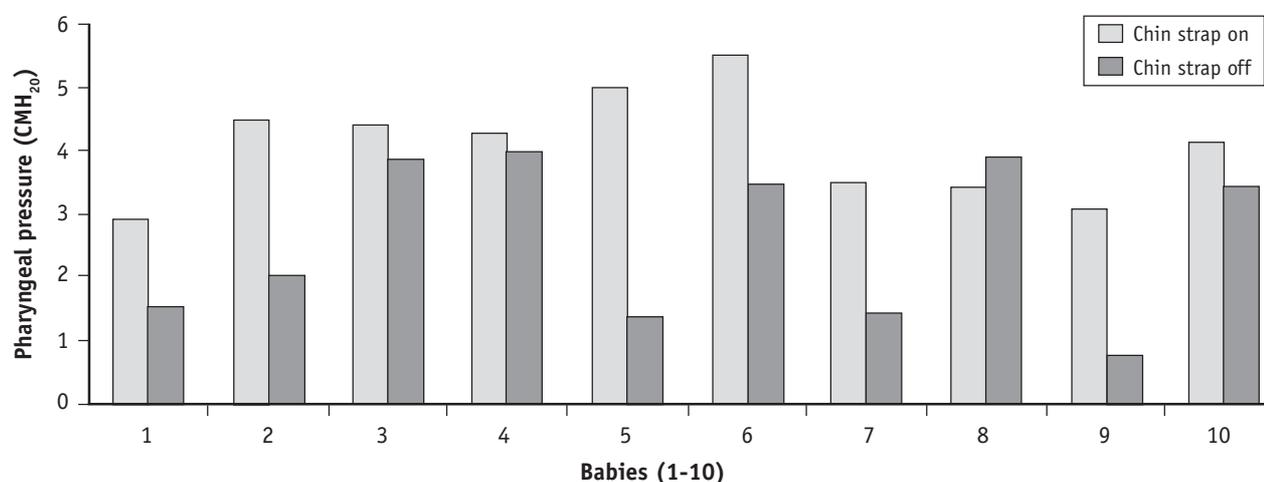


Figure 1: Pharyngeal pressure in 10 babies with chin strap on and chinstrap off.