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Oral breathing in newborn infants.

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Newborn infants are considered obligate nasal breathers, hence dependent on a patent nasal airway for ventilation. The conditions under which oral breathing could occur and the contribution of oral ventilation to total ventilation were studied in 30 healthy term infants (aged 1 to 3 days). Nasal and oral airflow were measured using two resistance-matched pneumotachometers, and heart rate, tcPO2, etCO2, and sleep state were continuously recorded. In three of 10 infants studied in undisturbed sleep, spontaneous oronasal breathing was noted during both active and quiet sleep (mean duration 19 +/- 25 minutes), the distribution of tidal volume being 70% +/- 12% nasal and 30% +/- 12% oral. Episodes of oronasal breathing were also observed after crying in six infants (mean duration 21 +/- 19 seconds). In an additional 20 infants, multiple 15-second end-expiratory nasal occlusions were performed; eight (40%) of these infants initiated and sustained oral breathing in response to nasal occlusion. Respiratory rate, tidal volume, heart rate, and tcPO2 did not change when oral breathing occurred in response to nasal occlusion, although minute ventilation decreased from 265 to 199 ml/min/kg (P less than 0.05). These results demonstrate that newborn infants may use the oral airway for ventilation, both spontaneously and in response to complete nasal occlusion.

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