

Effects of theophylline administration and intracranial abnormalities on protective head turning response in preterm infants

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Objective: To determine effects of theophylline therapy for recurrent apnoea of prematurity and abnormal early (within the first 24 hours) cranial ultrasound abnormalities on protective neck turning response in preterm infants. **Design:** A cross sectional descriptive study. **Setting:** The Neonatal Unit of Hammersmith Hospital, London over a period of four months (February to May 1987) and the babies followed up for six months after discharge. **Main outcome measures:** Preterm babies of gestation 25 to 33 weeks confirmed by early postnatal Dubowitz assessment were studied. All infants had cranial ultrasound examination within the first 24 hours of birth. Protective side turning response was recorded for each baby weekly until discharge. The pattern of maturation of the response was then analysed. **Results:** Thirty preterm infants (mean gestation 30 weeks) were studied. The babies treated with theophylline had significant ($p=0.004$) delay in the maturation of the response. This improved within two weeks of stopping treatment. Eight infants had intracranial haemorrhage and seven had periventricular density. Both these groups were similar with respect to the maturation of the response. No significant interaction was found between theophylline therapy and abnormal cranial ultrasound as regards the protective side turning response. Six months follow up showed no serious neurological abnormalities among the infants. **Conclusion:** Theophylline administration and perinatal brain injury may have a delaying effect on protective head turning response in the neonatal period and therefore should be taken into account during neurological examination of the preterm neonate. This effect does not seem to result in any significant long-term neurological sequelae