

## OP28

**Ventricular shunting in neonates and infancy and development of plagiocephaly: how serious is it?**Stuart Roberts, Reema Chawla, Guirish Solanki*Birmingham Children's Hospital, United Kingdom*

**Objectives:** To establish if there was a link between position of a ventricular shunt and the subsequent development of plagiocephaly.

**Design:** Retrospective Cohort Study

**Subjects:** All children with a ventricular shunt inserted from 2006 onwards with follow up imaging.

**Exclusion Criteria:** Pre-existing plagiocephaly, bilateral ventricular shunts, no follow-up imaging.

**Methods:** The pre-operative, post-operative and follow-up CT images of all patients were examined. We noted the shunt insertion site and side and subsequent development of positional plagiocephaly.

**Results:** Of 455 consecutive children, 374 had appropriate imaging identified, 81 were excluded. There were X boys and Y girls. Ages ranged from 0-16+ years. 121 (32.3%) developed plagiocephaly following shunting, 88% on the contralateral side. Under 12 months 51/128 (40%) developed plagiocephaly. The risk of plagiocephaly was 2.33 greater than between 1-3 years old (7/41, 17%) odds ratio of 3.21 ( $p < 0.008$ ). The risk of a posterior parietal shunt causing plagiocephaly vs. anterior frontal horn position was 3.41 greater with an odds ratio of 4.71 (Fisher's exact test  $p < 0.0016$ ).

**Conclusions:** Shunt insertion in neonates and infants is associated with the greatest risk for development of positional plagiocephaly, contralateral in >80%. Children may be spending an excessive amount of time lying on the contralateral side. This study highlights the need for active measures to prevent the development of plagiocephaly. Specific nursing of children, discharge advice given to families and regular observational follow-up must be carried out. Anterior shunt placement is least associated with plagiocephaly but this is not always ideal or possible.