

**OP27****Quantification of radiation exposure in children with ventriculo-peritoneal shunts**

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**Introduction:** A computed tomography (CT) scan in childhood is associated with a 24% greater incidence of cancer (Matthews et al. *BMJ* 2013). CT scans are used in patients with ventriculo-peritoneal (VP) shunts in whom shunt dysfunction is suspected. We aimed to quantify CT exposure in children with VP shunts.

**Methods:** We performed a single centre retrospective analysis of CT head scans in children <16y with VP shunts. Coding data was cross-referenced with electronic records and radiology databases in our unit and those in referring hospitals. We recorded demographics, diagnosis, shunt insertion date (and removal if applicable), the number of CT head scans performed on each child and the indication for each scan.

**Results:** 133 children with VP shunts were identified. Mean time with shunt in situ was 5.7 years (range 0.3 – 15.9, SD 4.8). A mean of 3.5 CT scans (range 0 – 20) were performed on each child, amounting to 0.66 CTs per shunt year (range 0 – 5.33, SD 0.86). Based on 2mSv of radiation per scan, this equates to an average exposure of 1.32mSv per child per shunt year.

**Conclusion:** Children who have multiple CT head scans for investigation of possible shunt dysfunction are at a greater risk of developing cancer. We propose a strategy to limit radiation exposure in children with VP shunts:

- If suspicion of shunt malfunction is low then admit/observe rather than scan; if suspicion is moderate to high, consider ultrasound or MRI if possible.
- Educate referring hospitals to avoid “knee-jerk” scanning.
- Reduce CT slices to limit radiation exposure.