

## DMSA after UTI in children, when is it likely to be abnormal?

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Dear Editor,

Urinary Tract Infection (UTI) is a common cause of hospital admission in children. The follow-up imaging such as ultrasound (US), Micturating cystourethrogram, and Dimercaptosuccinic acid scintigraphy (DMSA) was illustrated in numerous guidelines<sup>1,2,3</sup>. DMSA scan is a nuclear isotope uptake scan. It is usually indicated if UTI is atypical, recurrent or if initial ultrasound is significantly abnormal<sup>4</sup>. Since DMSA is an invasive investigation, that requires a day case admission, sedation, and injection of an isotope material, we decided to audit our practice to see if we are utilizing it as per NICE guidelines. We also studied the initial renal ultrasound scan performed at the acute presentation with UTI and we examined whether abnormal initial renal ultrasound can predict an abnormal DMSA.

We conducted a retrospective review of the imaging of all children admitted with UTI between August 2021 to August 2022 in CHI at Tallaght Hospital. Atypical, or recurrent UTI was defined as per NICE guidelines<sup>3</sup>.

We examined 66 patients admitted with UTI, mean (SD) age 34.15 (43.83) months. Mean (SD) LOS was 4.18 (2.43) days. Of 66 patients, 23 (34.85%) had recurrent UTI and 1 (1.81%) exhibited atypical UTI, 26 (39.4%) had normal US and 13 (19.7%) had abnormal DMSA. There is significant association between abnormal DMSA and abnormal US imaging (p-value 0.02) but not pyelonephritis or normal US. Of 13 patients with abnormal DMSA, 6 (46.2%) had underlying abnormalities shown by US, such as Bifid, duplex kidneys, hydronephrosis or size discrepancy. Moreover, abnormal DMSA was associated with atypical UTI (p-value 0.001) and recurrent UTI (p-value 0.02). Notably, of 13 patients with abnormal DMSA, 9 (69.23%) and 8 (61.54%) had atypical UTI and recurrent UTI, respectively. However, no association has been reported between abnormal DMSA and age at presentation or length of hospital stay (p-value > 0.05).

In conclusion, the current guidelines were followed in this cohort of patients with UTI. In children with UTI, follow-up DMSA is recommended particularly in children with recurrent or atypical UTIs or those with abnormal US. These results highlight the importance of following current guidelines regarding imaging following UTI in children.

### Declarations of Conflicts of Interest:

None declared.

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