Background

- Urinary tract infections (UTI) are the most common cause of bacterial infection causing illness in febrile infants and children. The National Institute for Health and Care Excellence (NICE) recognises that progressive renal scarring is well documented in children with high-grade vesicoureteric reflux and recurrent UTI, the implications of which include hypertension, proteinuria and established renal failure.1

- The knowledge that such complications can occur has proved a major impetus in the investigation of first and recurrent UTI in children under the age of sixteen.1 An appropriate and consistent imaging pathway also avoids unnecessary investigations, reduces costs and anxiety for both children and parents.

Standard

Current NICE guidelines entitled “Urinary tract infection in under 16s: diagnosis and management” [Fig 1].2

Indicator

To assess the current practice of investigation in paediatric UTI at Bradford Royal Infirmary.

Target

100% concordance with NICE guideline recommendations.

Methodology

This was a retrospective analysis of 119 paediatric ultrasound requests for UTI between April and December 2014. As per NICE guidelines, children were divided into three categories based on age (under six months, six months to three years and over three years of age). The pathway of investigation (ultrasound, DMSA, MCUG) was evaluated according to first or recurrent and/or atypical UTI and correlated with current recommendations.

Results

Overall compliance with NICE guidelines across the three age groups was 48%. Compliance with guidelines was 53% in the under six months age group [Fig 2], 58% in those aged between six months and three years [Fig 3] and 34% in children aged over three years [Fig 4].

Non-compliance was predominantly due to a lack of assessment with DMSA following ultrasound in indicated cases. This was particularly prevalent in children aged over three years whereby DMSA was not performed in 85% of cases of recurrent UTI. In those aged under six months, 24% of patients underwent DMSA and MCUG when it was not required; similarly, 18% did not undergo DMSA and MCUG despite being indicated.

21 patients underwent DMSA in total. Of the 5 abnormal cases, ultrasound demonstrated a corresponding abnormality in 4 patients (80%).

Discussion

- Current guidelines can create confusion with different age groups and different investigations based on different types of UTI. This is likely to be a key factor accounting for an overall poor compliance with NICE guidelines.

- The majority of patients with recurrent UTI did not undergo DMSA, particularly those over three years of age. This is important as recurrent UTI is associated with renal scarring which cannot be excluded by a normal US, as demonstrated in this audit.

Action Plan

- Information cascaded to referring clinicians, reinforcing and improving awareness of current NICE recommendations.

- Educational posters to simplify guidelines and summarise the salient points.

- To re-audit to close the cycle assessing whether an improvement has been made.

References
