

Two abstracts chosen from 411 abstracts presented at Renal Association meetings during the 1980s

A randomised controlled trial disproves a popular myth.... routine reimplantation of refluxing ureters makes no difference to scarring or infection.

A PROSPECTIVE RANDOMISED TRIAL OF OPERATIVE VERSUS NON-OPERATIVE MANAGEMENT OF SEVERE VESICO-URETERIC REFLUX: TWO YEAR FOLLOW-UP OF 96 CHILDREN

The Birmingham Reflux Study Group: R. Astley, R.C. Clark, J.J. Corkery, P. Gornall, G.E. Knox, K.J. Shah, C.M. Taylor, R.H.R. White and M.H. Winterborn [1982]

The Children's Hospital and Department of Social Medicine, Birmingham University, Birmingham, England

Since 1975 children found to have severe primary vesico-ureteric reflux (VUR) have been allocated randomly to operative or non-operative management in three age strata: <1 year, 1-5 years and > 6 years. Continuous chemoprophylaxis was given to both treatment groups. The following observations were made at entry and at two and five years: intravenous urogram, cystourethrogram, ⁵¹Cr EDTA clearance, plasma creatinine and overnight urine osmolality. Growth and blood pressure were monitored 3-monthly and urine checked for infection (UTI). This report concerns 109 children who have completed two years follow-up; 13 of these were withdrawn for failure to comply with protocol or inadequate data, leaving 96 children in whom 135 allocated ureters and kidneys were studied. Radiological assessment was made without knowledge of the mode of treatment. Renal length was related to the intervertebral distance and expressed as a standard deviation score¹. Parenchymal scarring was evaluated as either new scar formation or progression of that observed at entry. Observations at entry and at two years were compared statistically using either χ^2 test (Yates corrected) or Student's t test.

At two years there were no significant differences in renal growth and scarring or in renal excretory function in the operative and non-operative groups. There was an equal incidence of breakthrough UTI in each treatment group, and in those kidney exposed to UTI there was no significant difference in renal growth, scar progression or formation. Children

age > 6 years who were treated operatively had a significantly higher mean urine osmolality at two years ($p < 0.05$). We are currently investigating the nature of this difference.

Ureteric reimplantation was technically successful in 67 out of 69 instances (97%); no ureteric obstruction or other serious complication arose as a result surgery. Of the 65 ureters managed non-operatively, 36 (55%) showed persistent severe reflux. In the two years' observation period no clinical advantage has emerged as a result of either form of management. However, the potential risks of longstanding unresolved VUR require further evaluation and this study includes further assessment 5 years after entry.

Reference

1. Eklof O, Ringertz H.
Kidney size in children. A method of assessment.
Acta Radiol(Diagn), Stockholm 1976; 17: 617-625

Commentary by John Feehally

When I was a medical student in the mid 1970s I recall one urological truth I was taught to be self-evident. If ureters reflux, it is right to stop it happening, and as sure as night follows day there will be less infection and less scarring. Grateful parents were shown the postoperative imaging that confirmed the surgical triumph, and retreated content that the risk of future renal scars and kidney failure had been averted for their child as best as was humanly possible.

We are very fortunate that generations of children have now been protected from 'routine' ureteric reimplantation by the findings of this landmark RCT. I have little doubt that contemporary 'triallists' might critique aspects of its design and execution, but the findings were clear cut, and rightly influential: surgical reimplantation was no better than conservative management with prophylactic antibiotics at preventing infection and later renal scarring. This initial report only followed the children for two years, but longer follow up did not negate the message.

The *sine qua non* of proposing an RCT is of course clinical uncertainty, and I wonder in the early 1970s how difficult it might have been to find sufficient uncertainty to develop a multicentre trial and recruit to it; as an impressionable medical student I detected no hint of surgical uncertainty.

I wonder how unexpected were the findings? The paradigm was single stranded at that time – when coarse renal scarring was found in the setting of vesico-ureteric reflux, then the parenchymal renal condition 'reflux nephropathy' [earlier called chronic pyelonephritis] was

the consequence of ascending infection, and there was considerable experimental work in animals to added strength to this hypothesis.

But we now view things differently and know that at least some of these ‘scars’ are due to congenital dysplasia. One simple clinical point supporting this being that children with reflux can have neonatal scarring before they have ever had a urine infection. Dysplastic malformation of the kidney often coincides with malformation of the upper and lower urinary tract. In which case it is rather unsurprising that surgical reimplantation of ureters will alter the natural history of congenital dysplastic renal disease.