

PEDIATRIC UROLOGY

A nurse led education and direct access service for the management of urinary tract infections in children: prospective controlled trial

Coulthard MG, Vernon SJ, Lambert HJ, Matthews JN

Department of Paediatric Nephrology, Royal Victoria Infirmary, Newcastle NE1 4LP, United Kingdom

BMJ. 2003; 327: 656

Objectives: To determine whether a nurse led education and direct access service improves the care of children with urinary tract infections.

Design: Prospective cluster randomised trial.

Setting: General practitioners in the catchment area of a UK paediatric nephrology department.

Participants: 88 general practices (346 general practitioners, 107,000 children).

Main outcome measures: Rate and quality of diagnosis of urinary tract infection, use of prophylactic antibiotics, convenience for families, and the number of infants with vesicoureteric reflux in whom renal scarring may have been prevented.

Results: The study practices diagnosed twice as many urinary tract infections as the control practices (6.42 v 3.45/1000 children/year; ratio 1.86, 95% confidence interval 1.42 to 2.44); nearly four times more in infants (age < 1 year) and six times more in children without specific symptoms. Diagnoses were made more robustly by study practices than by control practices; 99% v 89% of referred patients had their urine cultured and 79% v 60% had bacteriologically proved urinary tract infections ($P < 0.001$ for both). Overall, 294 of 312 (94%) children aged under 4 years were prescribed antibiotic prophylaxis by study doctors compared with 61 of 147 (41%) by control doctors ($P < 0.001$). Study families visited hospital half as much as the control families. Twice as many renal scars were identified in patients attending the study practices. Twelve study infants but no control infants had reflux without scarring.

Conclusion: A nurse led intervention improved the management of urinary tract infections in children, was valued by doctors and parents, and may have prevented some renal scarring.

Editorial Comment

Despite advances in medical knowledge, many primary care physicians fail to diagnose urinary tract infections in children promptly. The authors studied whether a nurse assigned specifically to educate primary care physicians on the indications for urine tests and on whom to evaluate potential infections could effect a change in clinical practice among primary care physicians.

Indeed, compared to control primary care practices, those educated by the nurse diagnosed twice as many urinary tract infections (and 4 times more in infants). The diagnosis was made using cultures more often and similarly antibiotic prophylaxis was more frequently used. Interestingly, more renal scars were identified in the children treated by the primary care physicians who had been educated. The authors conclude that the management of urinary tract infection was improved by the nurse-led intervention.

It is intuitively obvious that more aggressive diagnosis is beneficial. However, despite the fact that the education program clearly led to more diagnosis of infections and renal scarring, it remains to be shown that there is really a health benefit to this more aggressive program. Furthermore, costs in this group were clearly higher. It seems that longer follow-up will be needed to determine if there are truly benefits to this aggressive education program.

Dr. Barry A. Kogan

*Chief and Professor of Urology and Pediatrics
Albany Medical College
Albany, New York, USA*

Kidney transplantation in children: impact of young recipient age on graft survival

Lufft V, Tusch G, Offner G, Brunkhorst R

Abteilung Nephrologie, Zentrum Innere Medizin und Dermatologie, Hannover, Germany

Nephrol Dial Transplant. 2003; 18: 2141-6

Background: It has been suggested that recipient age may have an effect on renal graft survival due to its potential influence on the competence of the immune system. A comparison of graft survival between children and elderly adults, however, has never been performed.

Methods: Forty patients ≤ 18 years old were included in the study group and compared with a control group of patients ≥ 65 years using a case-control analysis. Apart from age, matching criteria were the number of HLA mismatches and the date of transplantation.

Results: The mean age differed by 57 years between study and control group (10 +/- 5 vs 67 +/- 2, $P < 0.001$). There was no difference in the number of initially non-functioning grafts, sex distribution, immunosuppression, number of HLA mismatches on the HLA-DR, -B and -A locus, cold ischaemia time and the number of patients with panel-reactive antibodies. The only difference was a lower donor age in the study group (17 +/- 14 vs 35 +/- 16, $P < 0.001$) compared with the control group. During the follow-up of 109 +/- 54 and 79 +/- 49 months, respectively, acute rejections were more frequent in the study group (25 vs 12, $P < 0.01$). There was no significant difference in graft survival between both groups when death with functioning graft was excluded.

Conclusions: This study which compares two groups of patients with a mean age difference of 57 years could not demonstrate an effect of young recipient age on graft survival, though the incidence of acute rejections appeared to be significantly higher in the paediatric population. Thus paediatric renal transplanted patients do not seem to have a disadvantage regarding graft survival due to their young recipient age.

Editorial Comment

Renal failure is being seen with increasingly frequency in young children. Most of them stay on dialysis for a relatively short period of time and are treated with renal transplantation as soon as feasible. The technical challenges of transplanting into small recipients are considerable and well recognized. What has not been well assessed is whether immunological differences make rejection more common in pediatric recipients.

In this study, the results of renal transplantation in 40 pediatric recipients were compared with those seen in a control group of adults > 65 years of age. Interestingly, the children suffered twice as many episodes of acute rejection as the adults, but when death with a functioning graft was excluded from the analysis, graft survival was virtually identical. Hence, even though there may be an increased immunocompetence in children, the rate of survival of renal transplantation is the same as in adults. It remains to be seen whether more aggressive immunosuppression in children would be useful.

Dr. Barry A. Kogan

Chief and Professor of Urology and Pediatrics

Albany Medical College

Albany, New York, USA