Age as a main determinant of renal functional damage in urinary tract infection

Sir,

Berg and Johansson present a study of 61 girls with recurrent urinary tract infections and at least one febrile infection in order to detect those patients at high risk of developing renal damage, and recommend early diagnosis to prevent future renal damage. This study neither aids detection of those at risk, nor presents evidence that early diagnosis was also the outcome.

Firstly, they do not state how their patients were selected. If the criteria for entering the study were in any way age dependent, they could make no comparison across age groups. Secondly, they present a single estimation of glomerular filtration rate and then discuss the period when deterioration occurred without any sequential data. Two examples illustrate why this is insufficient. It may be that some children have dysplastic kidneys which are also vulnerable to infection, present early, and deteriorate no matter what treatment is instituted. Alternatively, suppose the chance of deteriorating renal function is independent of age and simply increases with the duration of follow up. The children presenting early would tend to have longer follow up from the first infection and greater chance of renal damage. Berg and Johansson, however, make no attempt to control for the duration of follow up, they simply state there was no sign of decreasing glomerular filtration rate with increasing follow up time, without presenting data on this vital point.

In summary, their data is difficult to interpret without more information.

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Drs Berg and Johansson comment:

As stated in our paper, patients who had had signs of acute pyelonephritis (that is, fever and raised erythrocyte sedimentation rate) were selected for the study. Furthermore, as stated in the discussion section, indications for the renal function tests were abnormal intravenous urogram findings or frequent recurrences of urinary tract infection. Since renal function is not fully developed until the age of 1½ to 2 years, patients younger than that were not studied.

In our study we presented single glomerular filtration rate estimations only, but a paper presenting data from follow up investigations is in preparation. We agree that some patients might have had dysplastic kidneys but this diagnosis cannot be settled with certainty without renal biopsy or at necropsy. We believe that the three patients with very low glomerular filtration rates might have dysplastic kidneys.

Some information on glomerular filtration rates in relation to follow up time is available from Figs. 1–3 of our article. In Fig. 1 the glomerular filtration rate was related to the age of the patient at the time of investigation. All patients with glomerular filtration rates less than −2 SD had their first pyelonephritis before the age of 3 years. If the three patients with the lowest rates are excluded, there is no tendency to decreasing renal function with age or follow up time (age, 1 to 3 years). To clarify this question further we now include a Figure in which the glomerular filtration rate is related to the duration of follow up. As mentioned in the paper, the mean follow up