complications such as post-transplantation diabetes mellitus and infection were similar to those in a control group of pediatric renal transplant recipients without mental retardation ($n = 164$).

These findings indicate that, in the setting of end-stage renal disease, kidney transplantation is appropriate even for children with severe mental retardation and immobility, providing that comorbidities are controlled.

Rachael Williams

Original article Ohta T *et al.* (2006) Kidney transplantation in pediatric recipients with mental retardation: clinical results of a multicenter experience in Japan. *Am J Kidney Dis* **47:** 518–527

CNI-free immunosuppression decreases the risk of malignancy after renal transplantation

Immunosuppression prolongs the survival of allograft recipients, but some immunosuppressants might also increase the risk of malignancy development in these patients. In experimental models, the calcineurin inhibitor (CNI) ciclosporin A (CsA) and the mTOR inhibitor sirolimus have tumor-promoting and tumor-inhibitory effects, respectively. A recent study investigated the effect of these drugs on the risk of renal transplant patients developing malignancies over a 5-year period.

Approximately 3 months after transplantation, patients were randomized to continue treatment with CsA plus sirolimus ($n = 215$) or to have CsA withdrawn and the sirolimus dose increased to approximately double trough levels ($n = 215$). All patients received steroids. Analysis at 5 years on an intention-to-treat basis showed that the CNI-free regimen was associated with an increased median time to a first skin carcinoma and a decreased risk for developing any skin carcinoma compared with combined CsA and sirolimus therapy (time to first skin carcinoma 1,126 days vs 491 days, $P = 0.007$; relative risk for any skin cancer 0.346, 95% CI 0.227–0.526, $P < 0.001$). Kaplan–Meier estimates showed that more patients treated with sirolimus plus CsA developed a non-skin cancer by 60 months post-transplantation than those on a CNI-free regimen (9.6% vs 4.0%; $P = 0.032$).

The authors conclude that withdrawal of the CNI CsA 3 months after transplantation and continued therapy with sirolimus reduces the risk of developing skin and non-skin cancer compared with a regimen combining both agents. Additional trials with longer follow-up are required to confirm these results.

Kate Matthews

Original article Campistol JM *et al.* (2006) Sirolimus therapy after early cyclosporine withdrawal reduces the risk for cancer in adult renal transplantation. *J Am Soc Nephrol* **17:** 581–589

How many biopsied glomerular profiles must be measured for accurate estimates of mean area?

Glomerular size has important clinical and prognostic implications, but gold-standard methods of volume estimation are labor-intensive and incompatible with common biopsy techniques. Using standard core biopsy tissue, Hoy *et al*. have determined the number of glomerular profiles that need to be measured to yield a reliable estimate of average size.

All centrally located glomeruli on slides of archived biopsy tissue from patients with nondiabetic renal disease ($n = 384$) were measured using traditional stereologic point-counting, to calculate the 'true individual mean' for each biopsy. These calculated averages were used to determine 'true population means' for groups of biopsies. Increasing numbers of randomly selected glomeruli were then measured to generate 'random sample means'.

Random sample means for individual biopsies correlated best with true means when ≥10 profiles were measured without regard to sclerosis, or when ≥8 nonsclerosed profiles were measured. The median number of glomerular profiles per biopsy was seven; when only nonsclerosed profiles were considered, the median number was four.

True population means could be reliably predicted by measuring as few as five randomly selected profiles per biopsy in a group of 30 biopsies; however, the reliability of this estimate improved as the number of renal biopsies included in the analysis increased. The authors recommend that, when estimating mean glomerular areas for a population of biopsies, all available biopsies should be included irrespective of the number of profiles in each.

Kate Matthews

Original article Hoy WE *et al.* (2006) How many glomerular profiles must be measured to obtain reliable estimates of mean glomerular areas in human renal biopsies? *J Am Soc Nephrol* **17:** 556–563