with either segmental ('IV-S') or global ('IV-G') distribution of lesions as published data so far has failed to show a worse outcome between these groups. They also quote one publication in which the authors conclude that this subclassification 'may not be justified.'<sup>3</sup>

Poorer renal prognosis in pediatric LN may be due to different etiopathogenesis. We found a worse outcome in children with class IV-G LN in our published data of 39 cases (85% female) aged 3.3–18.0 (median 13.7) years at our single center over 10 years.<sup>4</sup> Patients underwent 49 percutaneous renal biopsies at 0.1–7.8 (median 1.0) years from diagnosis of systemic lupus erythematosus with renal and overall survival rates of 90 and 92% respectively at a follow-up of 1.3–15.4 (median 5.5) years. In our cohort, the three most severe cases of chronic kidney disease with estimated glomerular filtration rate <25 ml/min/1.73 m<sup>2</sup> were patients with diffuse global sclerosing (class IV-G(C)) LN. Therefore, we require larger studies of pediatric LN to evaluate progression of disease and guide physicians on treatment.

- Markowitz GS, D'Agati VD. The ISN/RPS 2003 classification of lupus nephritis: an assessment at 3 years. *Kidney Int* 2007; 71: 491–495.
- Weening JJ, D'Agati VD, Schwartz MM *et al.* The classification of glomerulonephritis in systemic lupus erythematosus revisited. *Kidney Int* 2004; 65: 521–530.
- Mittal B, Hurwitz S, Rennke H, Singh AK. New subcategories of class IV lupus nephritis: are there clinical, histologic, and outcome differences? *Am J Kidney Dis* 2004; 44: 1050–1059.
- Marks SD, Sebire NJ, Pilkington C, Tullus K. Clinicopathological correlations of paediatric lupus nephritis. *Pediatr Nephrol* 2007; 22: 77–83.

SD Marks<sup>1,2</sup>, NJ Sebire<sup>3</sup> and K Tullus<sup>1,2</sup>

<sup>1</sup>Nephro-Urology Unit, UCL Institute of Child Health, London, UK; <sup>2</sup>Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Trust, London, UK and <sup>3</sup>Department of Paediatric Pathology, Great Ormond Street Hospital for Children NHS Trust, London, UK **Correspondence:** SD Marks, Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Trust, Great Ormond Street, London WC1N 3JH, UK. E-mail: s.marks@ich.ucl.ac.uk

## The Gitelman syndrome mutation, IVS9 + 1G > T, is common across Europe

Kidney International (2007) 72, 898; doi:10.1038/sj.ki.5002504

**To the Editor:** In a paper published in *Kidney International*, Coto *et al.*<sup>1,2</sup> described a *SLC12A3* mutation, IVS9 + 1G > T, subsequently shown to result in aberrant splicing and exon skipping. The 21 homozygote patients known so far belong to unrelated Gypsy families from Spain, Portugal, France, and Germany, suggesting that IVS9 + 1G > T is a shared ancestral mutation.<sup>1,2</sup> To provide more comprehensive data on its molecular epidemiology in European Gypsies, we tested a panel of 599 unrelated control subjects of Roma/Gypsy ethnicity from Bulgaria (representing eight different subisolates), Romania, Hungary, the Czech Republic, and Spain. Amplification refractory mutation system-polymerase chain reaction was used for screening (conditions available upon request), with positive results verified by restriction-fragment length polymorphism.<sup>1</sup> We detected 12 heterozygotes, randomly spread between sub-isolates and geographic locations, pointing to a founder effect common to the entire European Gypsy population. The overall carrier rate is 2%, ranging between 0 and 7% in different sub-isolates. Given the variable and often nonspecific clinical manifestations of Gitelman syndrome,<sup>3</sup> this information should facilitate the diagnosis and management of affected Gypsy individuals. The allelic heterogeneity of Gitelman syndrome, with over 100 mutations in SLC12A3 identified to date, has made genotype-phenotype correlations problematic.<sup>3</sup> The observed clinical heterogeneity in individuals homozygous for the same mutation points to the potential role of modifying genes.<sup>1,4</sup> The IVS9+1G>T founder mutation, with an expected incidence of affected homozygotes of 1:10 000 across Europe (up to 1:800 in some sub-isolates), should allow the collection of large numbers of genetically homogeneous patients, where phenotype diversity can be characterized further and the search for modifying factors can begin.

## ACKNOWLEDGMENTS

This project was partly supported by a Western Australian Institute for Medical Research student scholarship to ST Bouwer.

- 1. Coto E, Rodriguez J, Jeck N *et al.* A new mutation (intron 9 + 1 G > T) in the SLC12A3 gene is linked to Gitelman syndrome in Gypsies. *Kidney Int* 2004; **65**: 25–29.
- Riancho JA, Saro G, Sanudo C et al. Gitelman syndrome: genetic and expression analysis of the thiazide-sensitive sodium-chloride transporter in blood cells. Nephrol Dial Transplant 2006; 21: 217–220.
- Riveira-Munoz E, Chang Q, Bindels R, Devuyst O. Gitelman's syndrome: towards genotype-phenotype correlations? *Pediatr Nephrol* 2007; 22: 326–332.
- Lin SH, Cheng NL, Hsu YJ, Halperin ML. Intrafamilial phenotype variability in patients with Gitelman syndrome having the same mutations in their thiazide-sensitive sodium/chloride cotransporter. *Am J Kidney Dis* 2004; 43: 304–312.

ST Bouwer<sup>1</sup>, E Coto<sup>2</sup>, F Santos<sup>3</sup>, D Angelicheva<sup>1</sup>, D Chandler<sup>4</sup> and L Kalaydjieva<sup>1</sup>

<sup>1</sup>Western Australian Institute for Medical Research and Centre for Medical Research, The University of Western Australia, Perth, Western Australia, Australia; <sup>2</sup>Genética Molecular, Hospital Central de Asturias (Maternidad), Oviedo, Spain; <sup>3</sup>Pediatría, Hospital Central de Asturias (Maternidad), Oviedo, Spain and <sup>4</sup>Centre for Clinical Research in Neuropsychiatry, The University of Western Australia, Perth, Western Australia, Australia

**Correspondence:** L Kalaydjieva, Laboratory of Molecular Genetics, Western Australian Institute for Medical Research, 'B' Block, QEII Medical Centre, Perth, Western Australia 6009, Australia. E-mail: luba@cyllene.uwa.edu.au.