MILD MICROSCOPIC HEMATURIA OF RENAL ORIGIN: HIDDEN THREAT ?

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OBJECTIVES

Mild microscopic hematuria of renal origin is mostly not considered to be an indication for renal biopsy in Europe. The exception is this finding in potential living kidney donors, where biopsy is the gold standard for assessment of eligibility for kidney donation. The aim of this single center retrospective analysis was evaluation of renal biopsy findings in potential living kidney donors from January 2000 to December 2015.

Gender	Age (years)	eGFR (ml/s)	Erythrocytes/µl	Result of renal biopsy
F	49	1,7	25	Alport syndrome
F	38	1,7	20	Thin basement membrane disease
F	48	1,5	66	Thin basement membrane disease
F	49	1,66	22	Normal
F	67	1,51	67	Normal
F	39	1,7	51	Alport syndrome
M	53	1,4	9	IgA nephropathy
M	60	1,63	19	Glomerular abnormality
F	48	1,41	18	Normal
F	46	1,61	21	Early phase of LCDD
F	53	1,49	15	Hypertensive angiopathy
F	51	1,7	12	Hypertensive angiopathy
F	50	1,64	38	IgA nephropathy
M	40	1,63	15	Glomerular abnormality
F	65	1,43	66	Alport syndrome
M	56	1,51	14	Hypertensive nephrosclerosis
F	51	1,79	14	Hypertensive angiopathy
F	52	1,46	21	IgA nephropathy
F	43	1,73	13	Thin basement membrane disease

Table 1: Characteristics of living kidney donors with renal biopsy

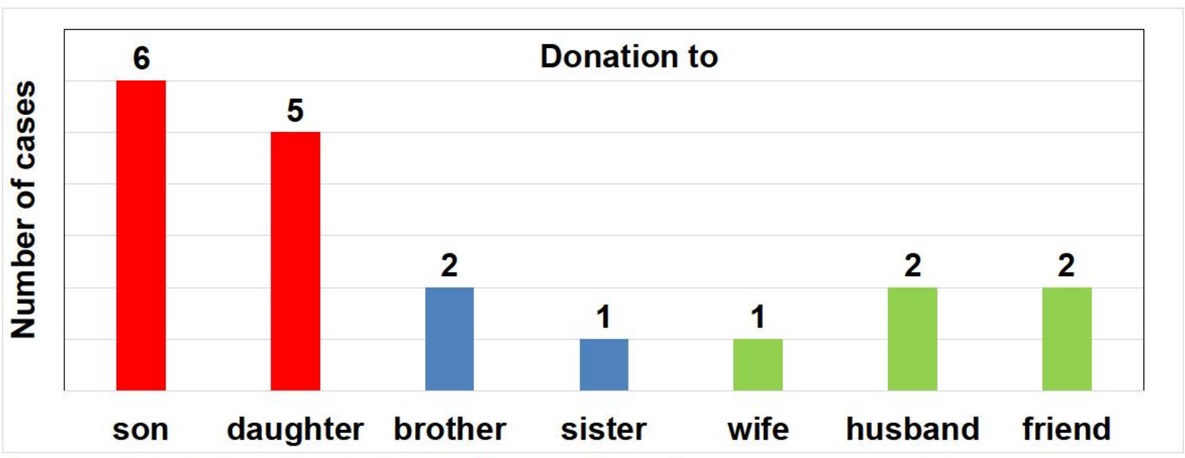

Figure 1: Relationships between living kidney donors and recipients

METHODS

The main reason for renal biopsy in all donors was renal mild microscopic hematuria (from 9 to 67 erythrocytes/µl in the urine sediment). All potential kidney donors before biopsy underwent intravenous urography, CT scan and cystoscopy with normal findings. Renal biopsies were performed in 19 (1,6%) from total of 1197 evaluated potential living kidney donors. All donors had normal renal function (eGFR 1,63 ± 0,12 ml/s) without albuminuria (urinary albumin/creatinine ratio from 0 to 1,3 g/mol) or proteinuria (< 0,068 g/l).

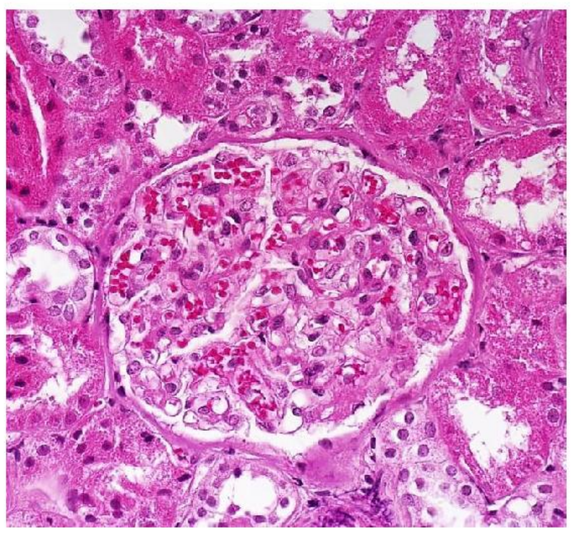

Figure 2:
Male donor - IgA nephropathy

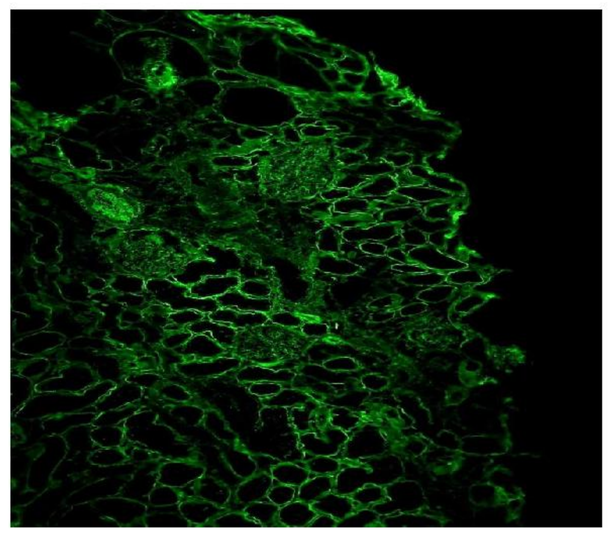

Figure 3:
Female donor - early phase of LCDD

RESULTS

Renal biopsy was performed in 10/19 donors in last two years that corresponds with the increased activity of living donor program. Median donor age was 50 years. 7 donors had hypertension, but well controlled and without end-organ damage. A total of 15 female and 4 male potential donors underwent kidney biopsy. The most frequent situation was donation for child in 11 cases. No biopsy was complicated by hemorrhage. Only 3 potential female donors had normal finding in renal biopsy. We found thin basement membrane disease/Alport syndrome in 6 cases. In 3 cases the IgA nephropathy with minimal fibrosis was found. In 4 donors there was hypertensive nephrosclerosis and in 1 female donor we found early phase of light-chain deposition disease. Nephrectomy was contraindicated on the basis of renal biopsy in 14 donors.

CONCLUSIONS

Mild microscopic hematuria of renal origin can be a sign of potentially progressive renal diseases in otherwise healthy people. Our analysis points out significance of renal biopsy in the algorithm for potential living kidney donor evaluation but also in general population suffering from minimal urine abnormalities.

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