RISK FACTORS FOR NON-DIABETIC NEPHROPATHY IN DIABETIC PATIENTS

Sheila Bermejo[1], María José Soler[1], Javier Gimeno[2], Clara Barrios[1], Eva Rodríguez[1], Sergi Mojal[3] and Julio Pascual[1]
(1) Nephrology Department (2) Pathology Department (3) Fundación IMIM, Hospital del Mar, Barcelona

BACKGROUND:

- Renal biopsy is not easy to indicate in diabetic patients with renal disease, as diabetic nephropathy (DN) is perceived as the expected histological diagnosis (1). However, non-diabetic renal disease is frequent in diabetic patients. Little is known on the clinical and laboratory characteristics that may define those patients before performing the biopsy (2).

- The objective of this study is to determine the predictability of non-diabetic nephropathy [NDN] by clinical and laboratory data in diabetic patients.

MATERIAL AND METHODS:

• Observational retrospective study of pathological result of diabetic patients biopsied at Del Mar Hospital from January 1990 to November 2013. In this period, were performed a total of 565 native kidney renal biopsies. Of these, 110 patients were diabetics (19.4%).

• Statistics:

- IBM SPSS software version 19.0.
- Comparison by univariate analysis between groups was performed using the t-student test (categorical variables) and the Wilcoxon test (continuous variables).
- Multivariate binary logistic regression analysis to obtain a ROC curve for variables potentially predictive of developing non-diabetic nephropathy against diabetic nephropathy.

RESULTS:

Table 1: Basal Characteristics of Population

Characteristics	DN	DN + NDN	NDN
Number (n)	38	4	68
Age (years)	58 (44-72)	59.8 (51.3-68.3)	63.5 (53.4-73.6)b
Male	29 (76.3%)	3 (75%)	55 (80.9%)
Race			
Caucasic	35 (92.1%)	4 (100%)	58 (58.3%)
Asiatic	0	0	6 (8.8%)
Unknown	3 (7.9%)	0	4 (5.9%)
Duration DM (years)	13.7 (2.9-24.5)	18 (16.5-19.5)a	8.4 (0.6-16.2)b,c
Diabetic Retinopathy	14 (36.8%)	0	10 (14.7%)b
Creatinine (mg/dl)	2.1 (0.8-3.4)	1.8 (0.6-3)	2.9 (1-4.8)b
Proteinuria (gr/24h)	4.6 (1.3-7.9)	3.8 (1.2-6.4)	2.8 (0.2-5.3)b

a: p<0.05 NDN + DN vs DN
b: p<0.05 NDN vs DN
c: p<0.05 NDN vs DN+NDN

Table 2: Multivariate binary logistic regression analysis of variables independently associated with NDN

Clinical Parameters	Lateral Sig. (p)	OR	CI (95%)
Creatinine (mg/dl)	0.044	1.48	1.011-2.172
Proteinuria (gr/24h)	0.025	0.813	0.679-0.974
Evolution of DM (years)	0.004	0.992	0.987-0.998
Age (years)	0.022	1.068	1.010-1.129
Diabetic Retinopathy (yes/no)	0.022	0.23	0.066-0.808

Dependent variable: Result of NDN in Renal Biopsy.

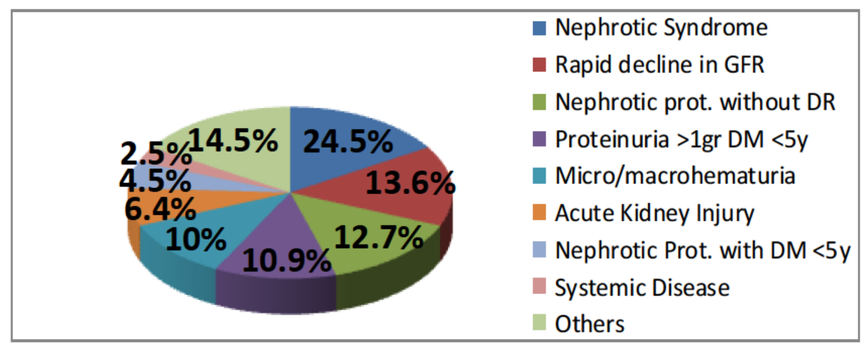

Figure 1: Renal Biopsy Indications

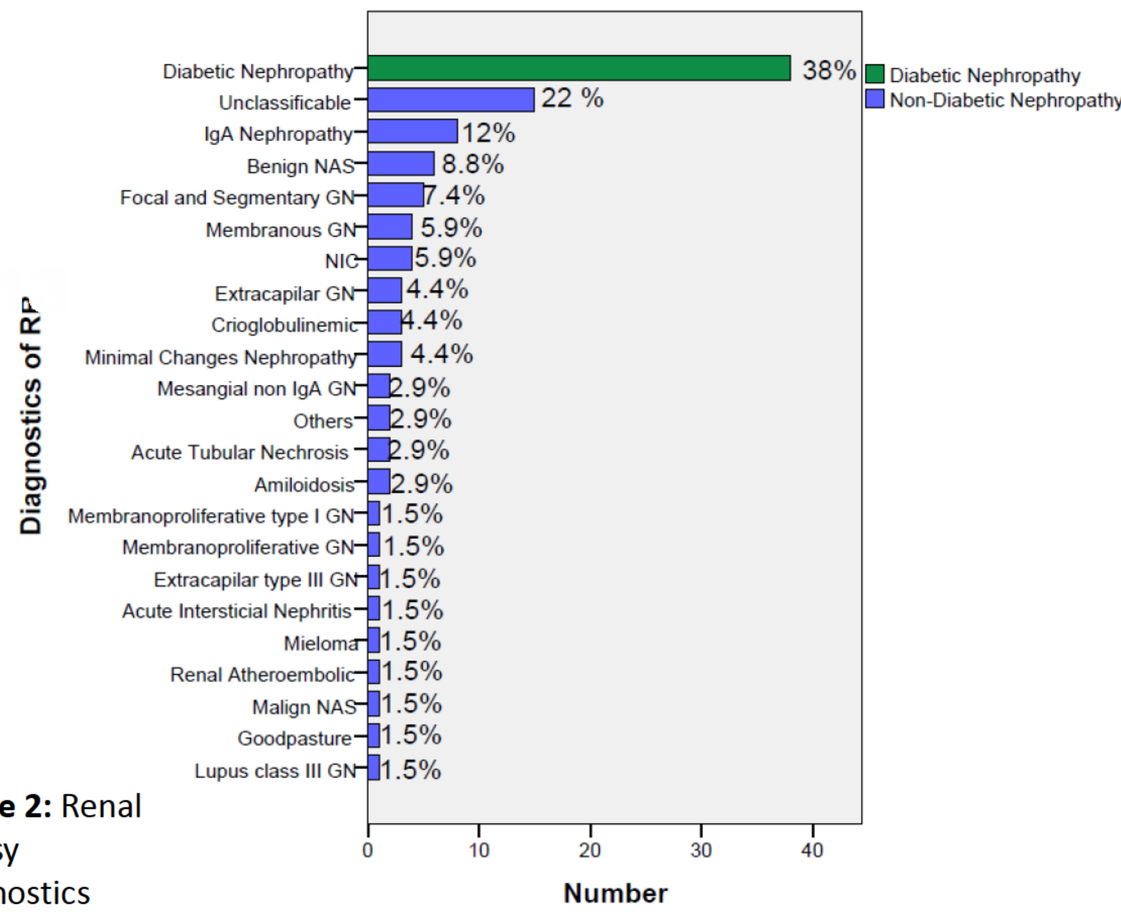

Figure 2: Renal Biopsy Diagnostics

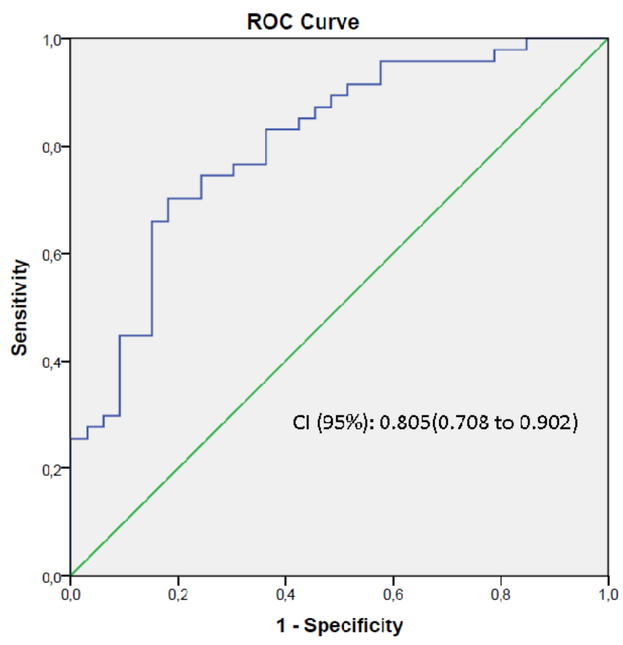

Figure 3: The discriminatory capacity of the model was tested using the ROC curve (95% CI): 0.805 (0.708 to 0.902).

CONCLUSIONS:

- Only 38% of diabetic patients with renal disease biopsied at our center have DN.
- Diabetic patients with older age, shorter diabetes duration, lower rates of retinopathy, elevated serum creatinine, and lower grades of proteinuria intensity have increased risk of NDN.
- The most frequent cause of NDN in our experience is IgA Nephropathy.

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Sheila Bermejo
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