Categorization of the diabetic nephropathy by Tervaert classification in clinical setting

Ana Pinho¹, Filipa Moreno²Renata Dias², Ramon Vizcaino^{2,} Ana Paula Silva¹

- ¹ Department of Nephrology Faro Hospital, Faro, Portugal
- ²Department of Anatomic Pathology Centro Hospitalar do Porto, Oporto, Portugal

Introduction and Aims:

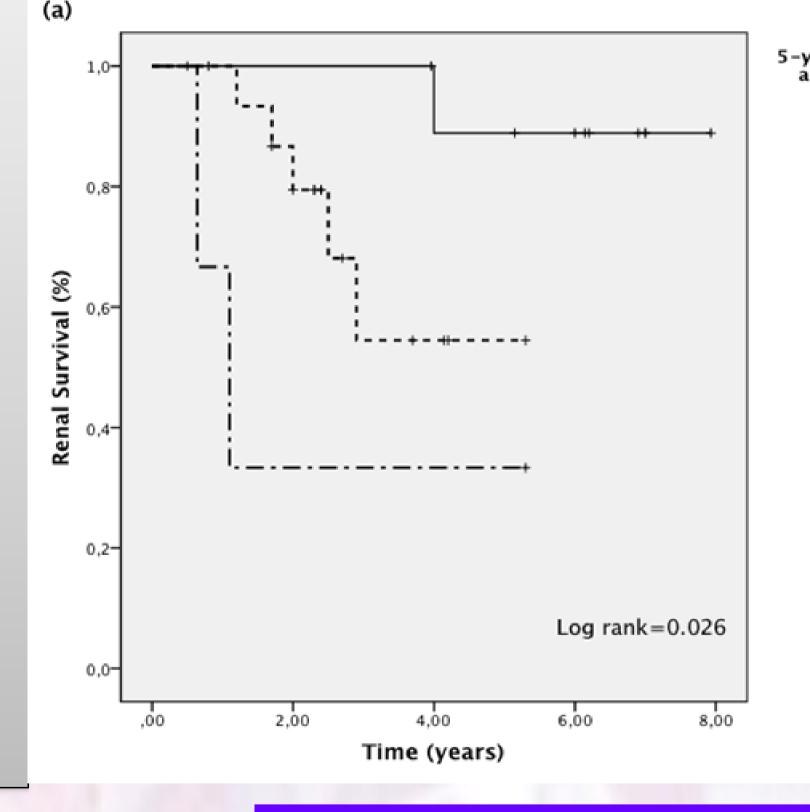
Nephropathy of diabetic patients can be diverse, occurring concomitantly with other primary glomeTherefore, challenges remain in the diagnosis of diabetic nephropathy (DN). the diagnostic to assess Our was rulopathies nephropathies. vascular or reliability prognostic value of and Terveaert DN classification in clinical setting.

Flowchart showing setting, eligibility and follow-up Through a hospital database with Records excluded: - Donor kidney biopsy (n=103) pathology records, were identified cases with renal biopsy from 2008 to 2012 Consecutive cases were screened for clinical diagnosis of diabetes mellitus (n = 710)Full-cases assessed for eligibility (n = 37) Eligibility Exclusion criteria: Three pathologists dassified Fewer than 7 glomeruli (n =0) independently and blindly NDRD only (n=7) Confirmed diagnosis of DN (n =27) New diagnosis of DN (n=3) Final Cohort submitted to ed Tervaert Classification (n=30) Includ Follow-up period (6.0 ±0.6 years) End point: Starting dialysis (n=7) Death (n=5) None lost of follow-up

Assessment of interobserver agreement Diabetic Nephropathy Classes by **Experienced pathologist** Class II (n=10) Class III (n=16) Class IV (n=4) Class II (n= 11) Intermediate experienced Class III (n=15) pathologist Class IV (n=4) Inter-observer agreement Cohen's kappa (95% % Cl)0.78 (0.57 to 0.98) Intraclass correlation coefficient (95% CI)0.85 (0.68 to 0.93) Class II (n= 10) Inexperienced Class III (n=15) pathologist Class IV (n=5) Inter-observer agreement Cohen's kappa (95% % CI)0.67 (0.43 to 0.91) Intraclass correlation coefficient (95% CI)0.80 (0.58 to 0.91)

0.72 (0.56 to 0.88)

0.82 (0.78 to 0.88)



5-year renal survival rate according to DN class - • TIII - 54.5% — וי – 33.3% – אוי – ── II–censored ─ III-censored → IV-censored

-vear renal survival rat according to DN class —□II - 100% - - TIII- 56.1% __` ¬IV− 33.3% → II–censored → III-censored → IV-censored . - - - - + - - + - - - - - + na 0,4-Log rank=0.024

Methods:

A single-centre study in a tertiary referral center for renal pathology was retrospectively conducted. All patients submitted to renal biopsy (RB) between 2008-2012 were evaluated. RB were revised by three pathologists (1 senior reader: >10 years. of experience; 1 intermediate reader: 3 years. of experience; and 1 junior reader: first year of practice) according to a low clinical threshold for DN. They categorized DN, blinded for inter-observer assessment and clinical outcome.

Results:

Demographic and clinical data at time of kidney biopsy in type 2 diabetic patients, stratified according to the Taervert classification of DN

	Class II	Class III	Class IV
	(n= 10)	(n=16)	(n=4)
Age (years)	49.5 ±2.3	51.5 ±3.5	52.5 ±5.2
Male(%)	84.3	92.3	86.9
Pure Diabetic nephropathy (n)	7 ^c	11 ^d	4
Diabetes duration (years)	11.1 ±7.4	16.5 ±3.5	14.5 ±8.5
Insulin therapy (%)	40*	68.8*	100*
Hypertension (%)	90	100	75
Creatinine (mg/dL) ^a	1.53 ±0.7	1.75 ±0.6	2.20 ±1.1
eGFR (ml/min/1.73 m²)b	57.2 ±10.4	51.1 ±22.1	42.3 ±15.4
Proteinuria >1gr (%)	80	87.5	75
* P<0.05			

(a) Renal survival, free of ESRD, among type 2 diabetic according to Tervaert classification of all DN cases*

*Included 8 mixed DN [IgA nephropathy (3 cases), transplant glomerulopathy (2 cases), light chain disease (1 case), amyloidosis (1 case) or HIV- Associated Nephropathy (1 case)]

(b) Renal survival, free of ESRD, among type 2 diabetic according to Tervaert classification of pure DN cases

Conclusions:

These findings corroborate the results from research centers: in fact, Tervaert classification seems to be user friendly and accurate in DN diagnosis. By attracting more attention to early lesions, it seems to contribute to increase diagnosis, which associated with its prognostic value, could be an important guide for future therapy decisions about DN. Future studies are therefore recommended, in order to development this clinically useful classification system.

References:

Time (years)

2.00

- Diabetologia 2008; 51:1347
- J Am Soc Nephrol 2010; 21:556
- Clin J Am Soc Nephrol 2013; 8: 171
- Nephrol Dial Transplant 2014; 29:109





385-MP

Global Inter-observer agreement

Intraclass correlation coefficient (95% CI)

Cohen's kappa (95% % CI)