PROGNOSTIC EVALUATION TOOLS IN IGA NEPHROAPTHY. OXFORD CLASSIFICATION (MEST SCORE) AND IGAN PROGRESSION CALCULATOR

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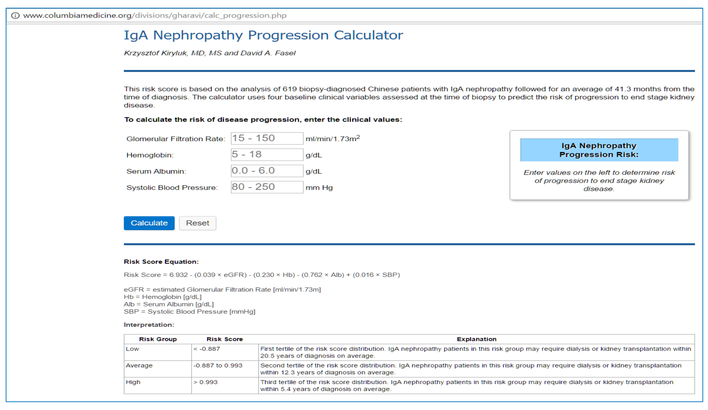
BACKGROUND:

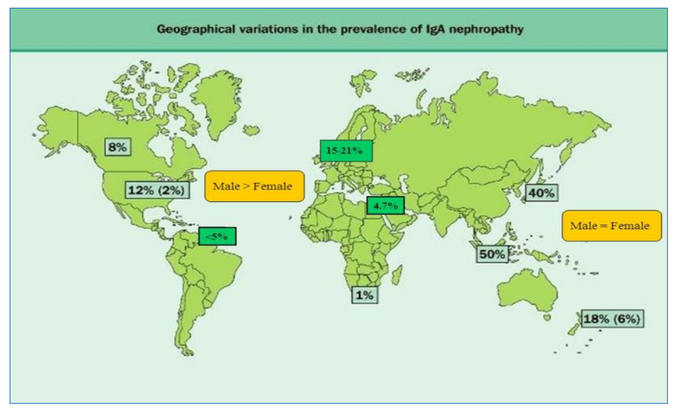
IgA nephropathy (IgAN) is the most common glomerular nephropathy in the world. Its clinical course can variate from an asymptomatic hematuria to rapidly progressive renal failure. Several strategies have been used to determine the risk of progression to ESRD, some of them based on renal biopsy and others on clinical and analytical findings at diagnosis. The most standardized method of prediction is based on histology at diagnosis (Oxford classification/MEST score). In last years, IgAN Progression Calculator (IgANPC) based only in 4 clinical and analytical findings at diagnosis was developed and it has been only validated in Chinese population.

We evaluate these two methods in our population at biopsy diagnosis of IgAN, and compare their ability to predict further development of GFR below 30ml/min.

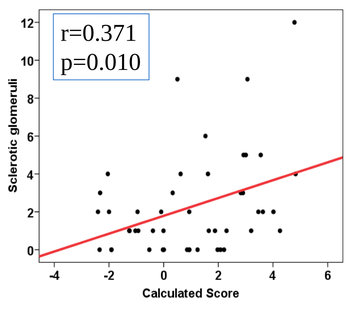
METHODS:

We performed a retrospective study of biopsied patients with diagnosis of IgA nephropathy from 1995 to 2015. All biopsies were classified according to MEST score. We also calculated the risk of progression with the online IgANPC (http://www.columbiamedicine.org/divisions/gharavi/calc_progression.php) with the data obtained at the time of the biopsy. The results were divided in three different risk groups: low risk (<-0.887), average risk (-0.887 to 0.993) and high risk (>0.993).

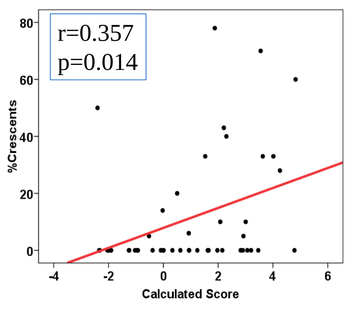




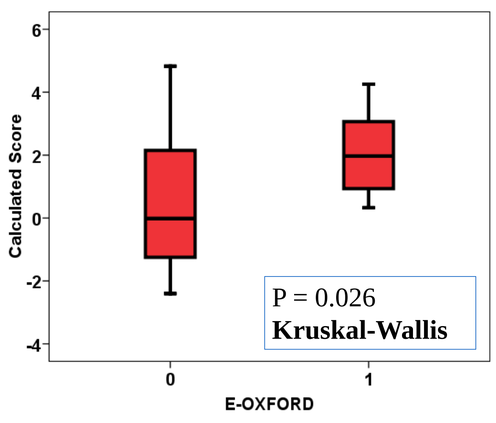
Pearson correlation for IgANPC Score and Sclerotic Glomeruli.



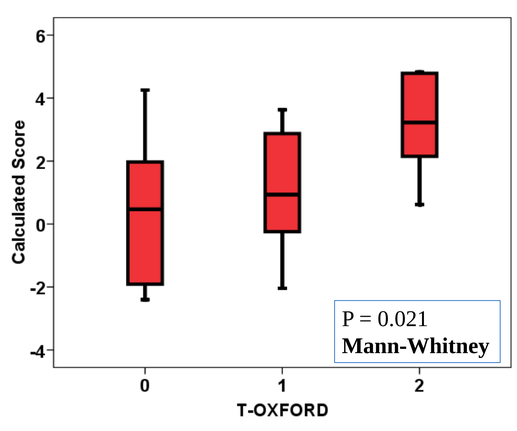
Pearson correlation for IgANPC Score and % of Crescents.



IgANPC Score and E of MEST classification:
Mean values of score are related with E1>E0.



IgANPC Score and T of MEST classification:
The higher score is, is related with the higher T.



RESULTS:

We analyzed 48 biopsies, 83% men and with a mean age of 40.8 ± 18.8 years at the time of biopsy.

The mean follow-up time was 10.68 ± 9.62 years. The mean risk score was 1.02 ± 2.07. The distribution of the risk groups were 25.0% for low risk group, 27.1% for average risk group and 47.9% for high risk group.

Patients with a biopsy E1 according to MEST score had a higher IgANPC score than those with E0 (1.94 ± 1.65 vs. 0.50 ± 2.15 p=0.021). IgANPC risk score was correlated with the percentage of crescent lesions in the biopsy (r=0.357, p=0.014). We did not find any significant relationship between IgANPC score and other histological variables.

Patients with a higher IgANPC risk score are at higher risk of develop GFR<30ml/min: percentage of patients with GFR above 30ml/min at 10 years was 100% for low risk group, 68.6% for average risk group and 0% for high risk group, Log Rank p=0.001.

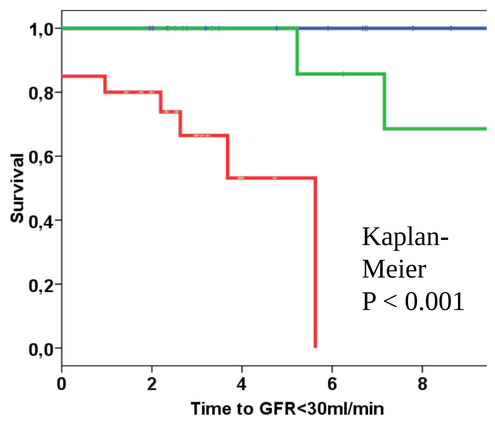
Patients with higher E (p =0.016) and T (p =0.001) histological variables showed a higher risk of developing GFR below 30ml/min. Multivariable Cox regression analysis demonstrated that IgANPC score was independently related with higher risk of developin GFR below 30 ml/min (HR:13.701, 95% CI 1.644-114.209,

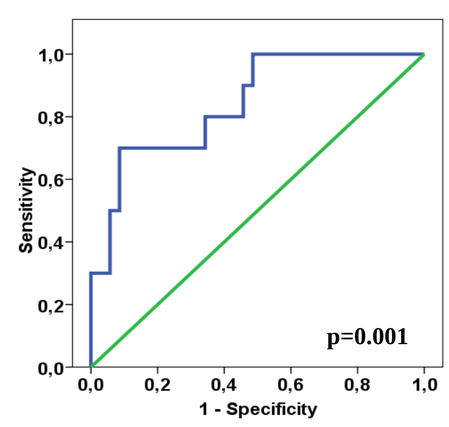
Mean Age	45 years
% Males	75.0
Creatinine	2.05mg/dl
GFR	62.11ml/min
SBP	141mmHg
DBP	80mmHg

Proteinuria	2850mg
%RAAS Bloq	62.5
%Steroids	50.0
%AZA	10.4
%MMF	16.7
%CFM	14.6

Situation	
Dead	10.4%
Alive	89.6%
ESRD	13.3%
GFR>30ml/min	77.8%

GFR<30ml/min and score





7.5 years % GFR>30

Blue → Category 1 100%
Green → Category 2 68.6%
Red → Category 3 0%

AUC-ROC 0.843, 95% CI 0.709-0.976,

- **All patients in category 1 of IgANPC risk score had GFR above 30ml/min after 7.5 years of follow up.**
- **None of the patients in category 3 had GFR above 30ml/min after 7.5 years of follow up.**

AUC-ROC IgANPC Score had a good predictive ability to GFR<30

Univariant COX regression analysis for GFR<30

	HR		CI	significance
Age at Biopsy	1.072	95%	1.029-1.118	p=0.001
Sclerotic glomeruli	1.498	95%	1.209-1.858	P<0.001
E at time of Biopsy	4.683	95%	1.278-17.162	p=0.020
T at time of Biopsy	4.043	95%	1.672-9.777	p=0.002
GFR	0.939	95%	0.896-0.939	p=0.009
Score 3	5.464	95%	1.806-16.532	p=0.003
Score (continous variable)	3.280	95%	1.768-6.085	p=0.000

Multivariant COX Regression analysis for GFR<30 (Model 1)

	HR		CI	significance
E at time of Biopsy	1.301	95%	0.338-5.014	p=0.702
T at time of Biopsy	2.988	95%	1.166-7.654	p=0.023
IgANPC score group 3	4.310	95%	1.376-13.495	p=0.012

Multivariant COX Regression analysis for GFR<30 (Model 2)

	HR		CI	significance
E at time of Biopsy	1.447	95%	0.343-6.108	p=0.615
T at time of Biopsy	1.986	95%	0.752-5.248	p=0.116
IgANPC score (continous variable)	2.825	95%	1.497-5.329	p=0.001

CONCLUSION:

- IgANPC score is an easy way to calculate the outcome of IgAN.
- In the population of our study, the IgA Progression Calculator score predicts the time to GFR<30ml/min, and adds information independent of renal biopsy score.
- The MEST classification score and IgA Progression calculator are useful and independent tools for prognostic prediction, but more studies are needed to validate the use of these equations in global population.

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