Intervention IgA vasculitis nephritis (IgAVN) is almost the only cause of morbidity and mortality among children suffering from this most common childhood-vasculitis. Several histological classifications are used in the analysis of renal biopsy findings in IgAVN, but it remains unknown which one is the best predictor of severity and disease outcome.

Objectives The aim was to compare the four most commonly used histologic classifications for IgAVN and to establish which variables of each histological classification have the strongest association with unfavorable outcome.

Methods The cross-sectional study included 69 patients with IgAVN (diagnosed by EULAR/PRES/PRINTO criteria) and available renal biopsy specimens for analysis using the four histological classifications for IgAVN (the International Study of Kidney Disease in Children (ISKDC) classification, the Oxford classification, the Haas histologic classification of IgAN nephropathy and the modified semi-quantitative classification (SQC), developed by Koskela et al.). The clinical outcome was defined through four categories, graded according to the modified classification of Cournahan (physical examination, hematuria, proteinuria, urine albumin-to-creatinine ratio, hypertension and eGFR). The linear relationships between outcome and histological classifications were analysed using ordinal regressions using the first-order of polynomial orthogonal contrasts.

Results The SQC classification proved to be the best, reducing the deviation (of the model-predicted outcome value from the observed value) by 9.5% ($\chi^2=13.89$, $p<0.001$), followed by the Oxford classification with a deviation reduction of 8.0% ($\chi^2=11.76$, $p=0.001$), then the ISKDC classification with a decrease in deviation of 3.3% ($\chi^2=4.89$, $p=0.027$). The worst was the Haas classification with a decrease in deviation of 2.1% ($\chi^2=3.06$, $p=0.080$). Analysis of individual variables of Oxford and SQC classifications showed that with increasing values in the variables of interstitial fibrosis ($t=6=3.23$, $p=0.002$), tubular atrophy ($t=6=2.94$, $p=0.005$) and tubular dilatation ($t=6=2.40$, $p=0.019$) in the SQC classification, and endocapillary hypercellularity ($t=6=3.14$, $p=0.003$) and crescents ($t=6=2.07$, $p=0.043$) in the Oxford classification the outcome worsens.

Conclusion This study showed that the SQC classification has the strongest association with the IgAVN severity and outcome. Although crescents on renal biopsy were considered the most important outcome indicators, our study suggests that tubulointerstitial changes could be more important as predictors of poor outcome. Intertitial and renal tubules changes...