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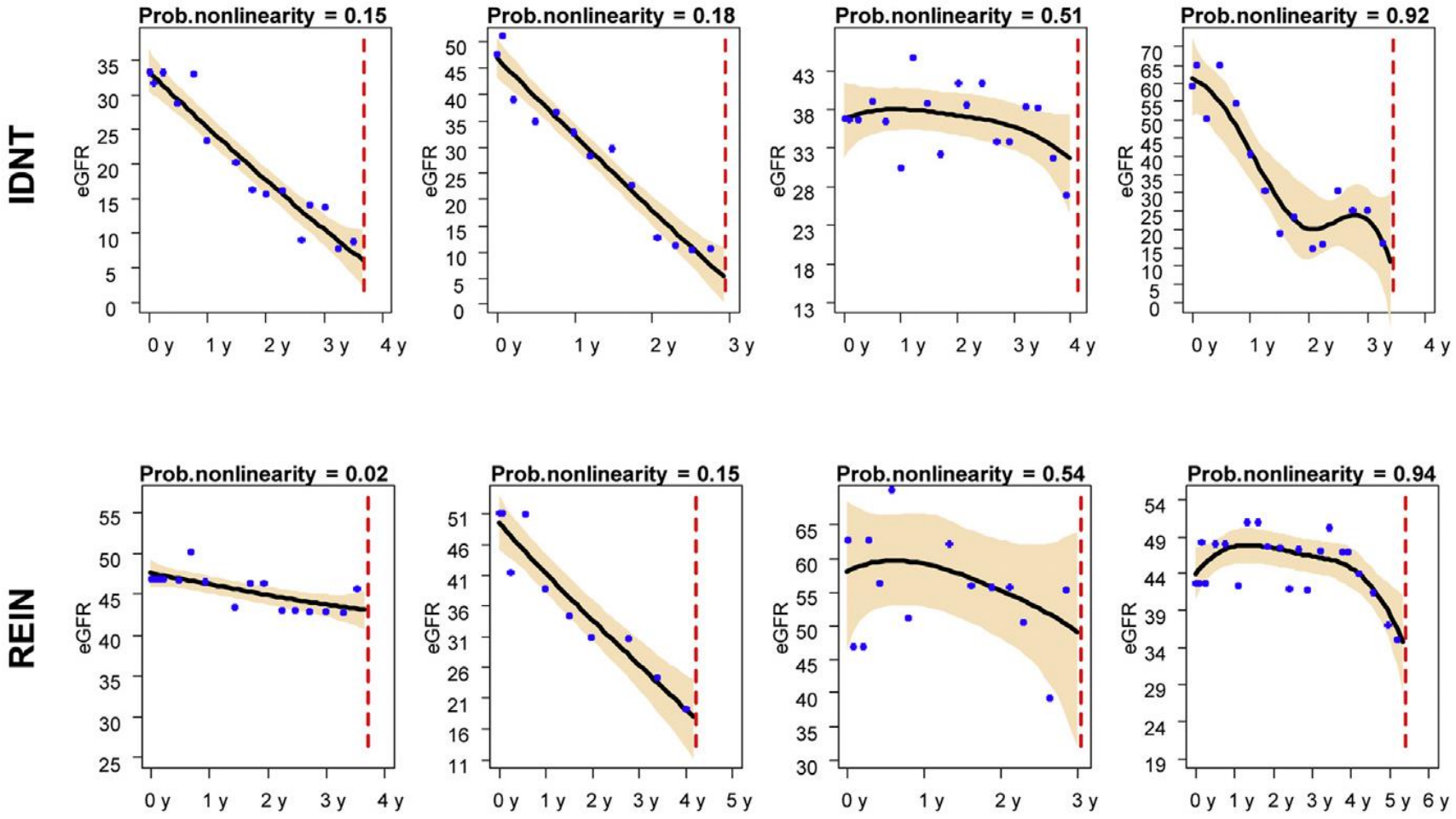
CKRI Centre for Kidney Research and innovation

NHS University Hospitals of Derby and Burton NHS Foundation Trust

Pathophysiology of CKD Progression

Maarten Taal
Centre for Kidney Research and Innovation
University of Nottingham and Royal Derby Hospital

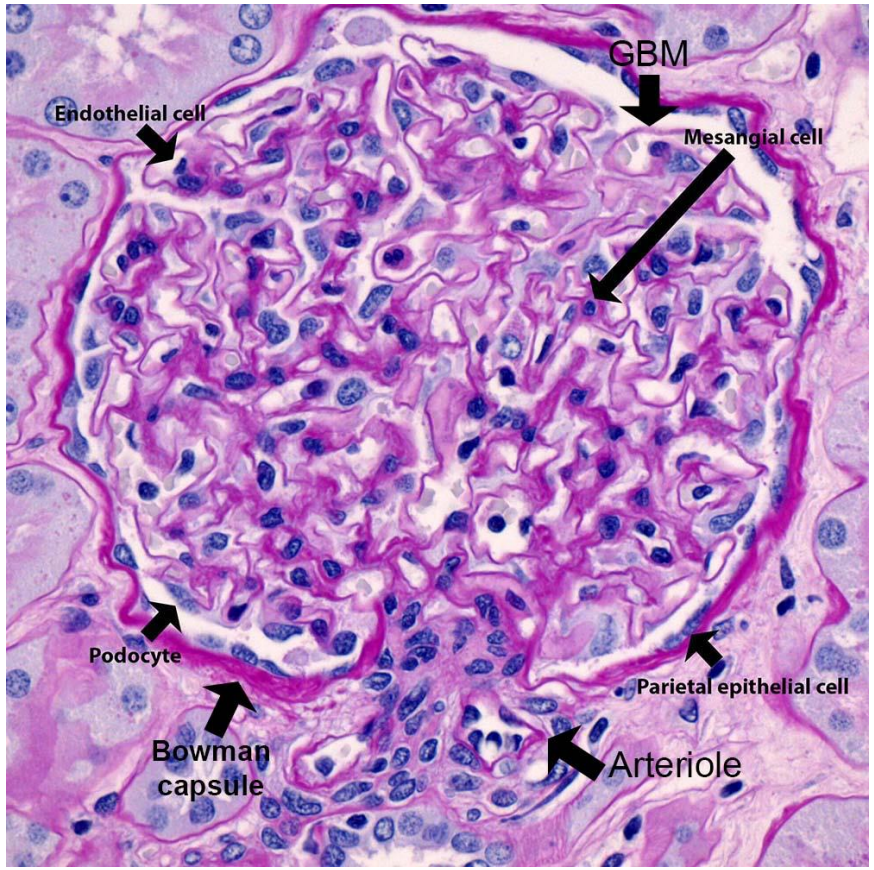
CKD Progression



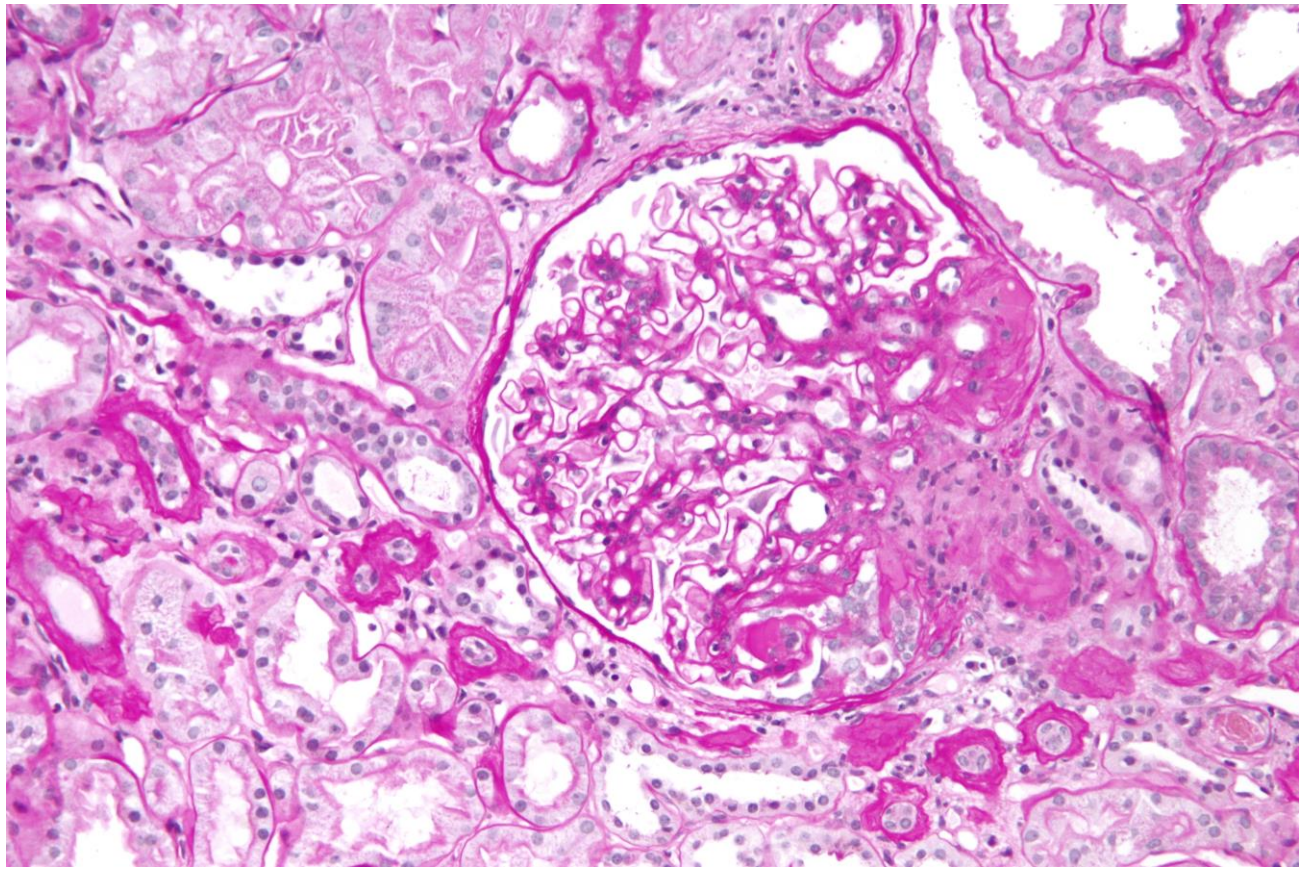
Weldegiorgis M et al. AJKD 2017; 71(1):91-101.

Glomerulosclerosis

Normal



FSGS



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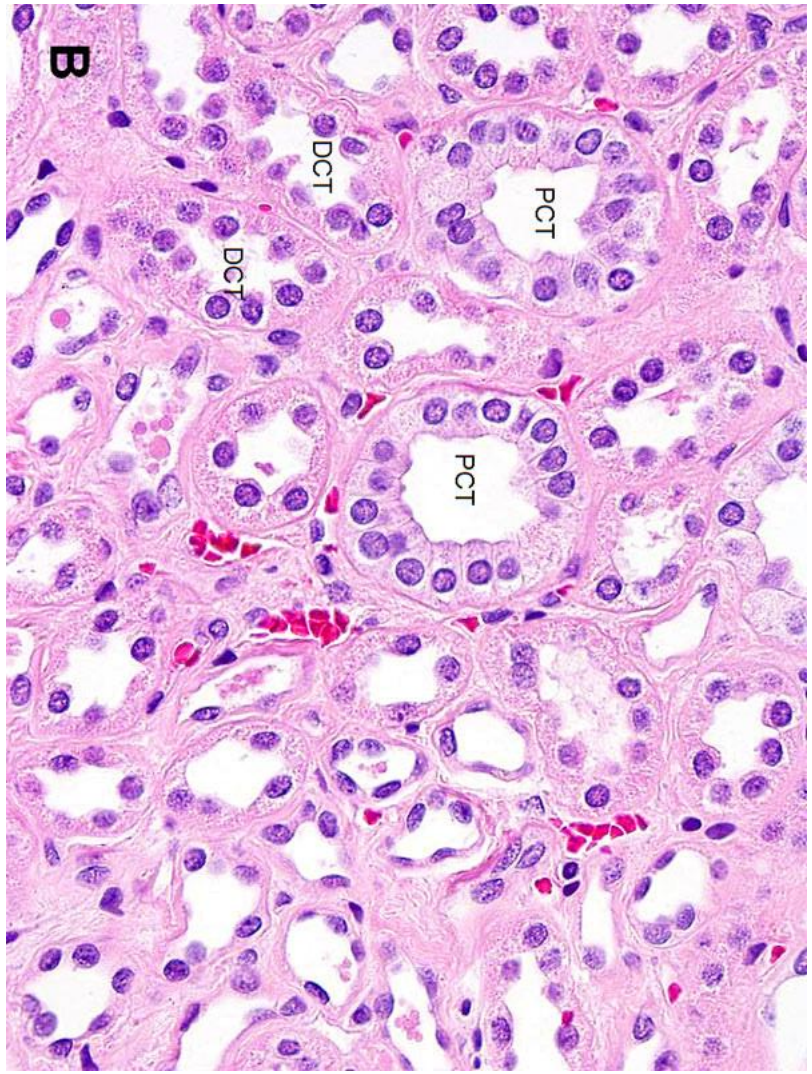
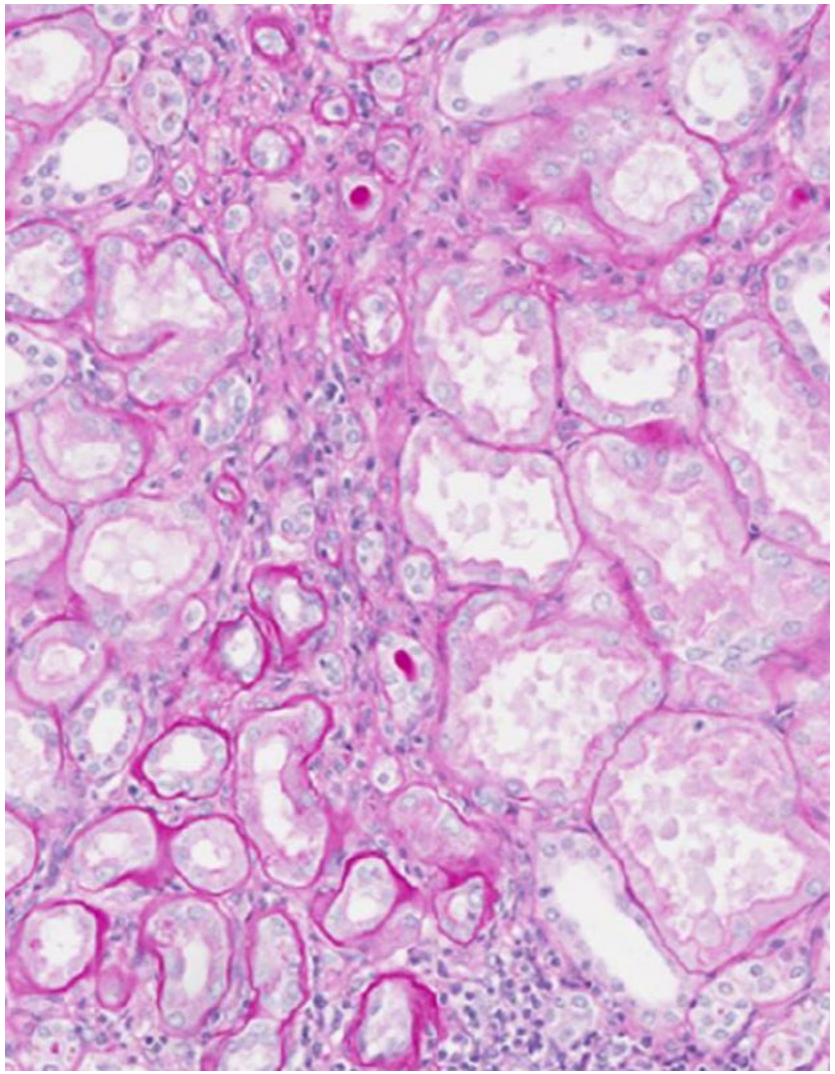
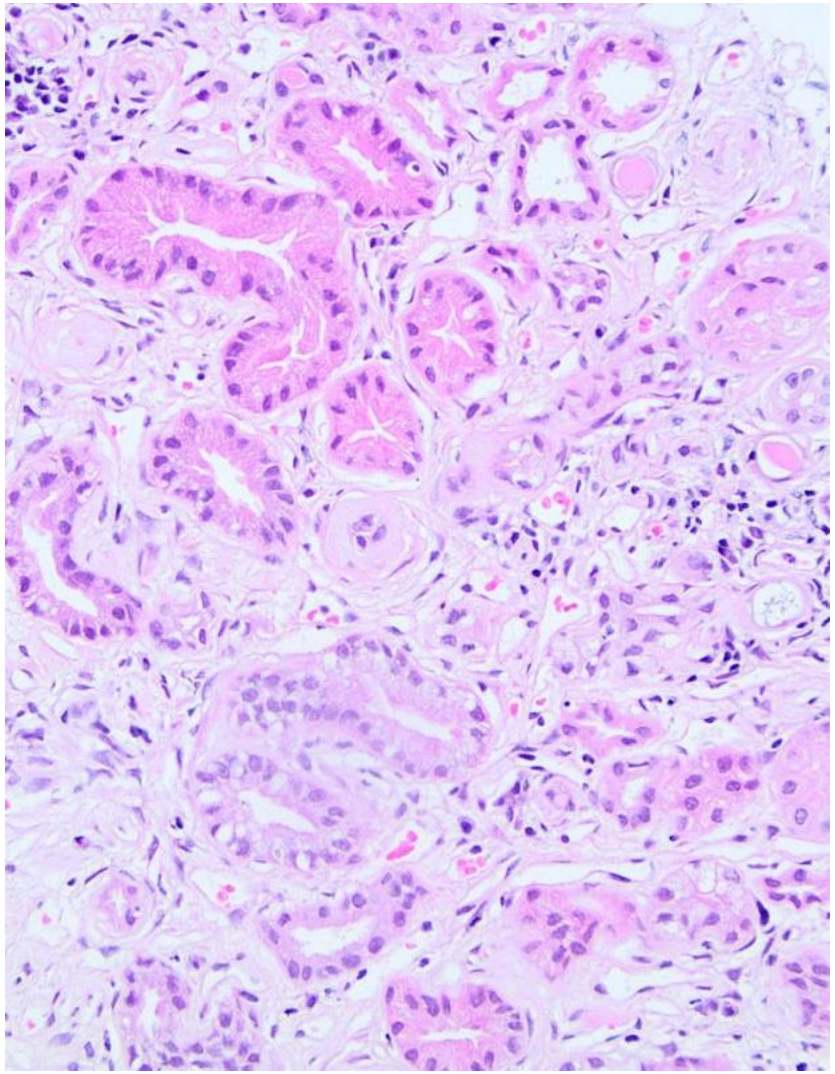
Tubulointerstitial fibrosis







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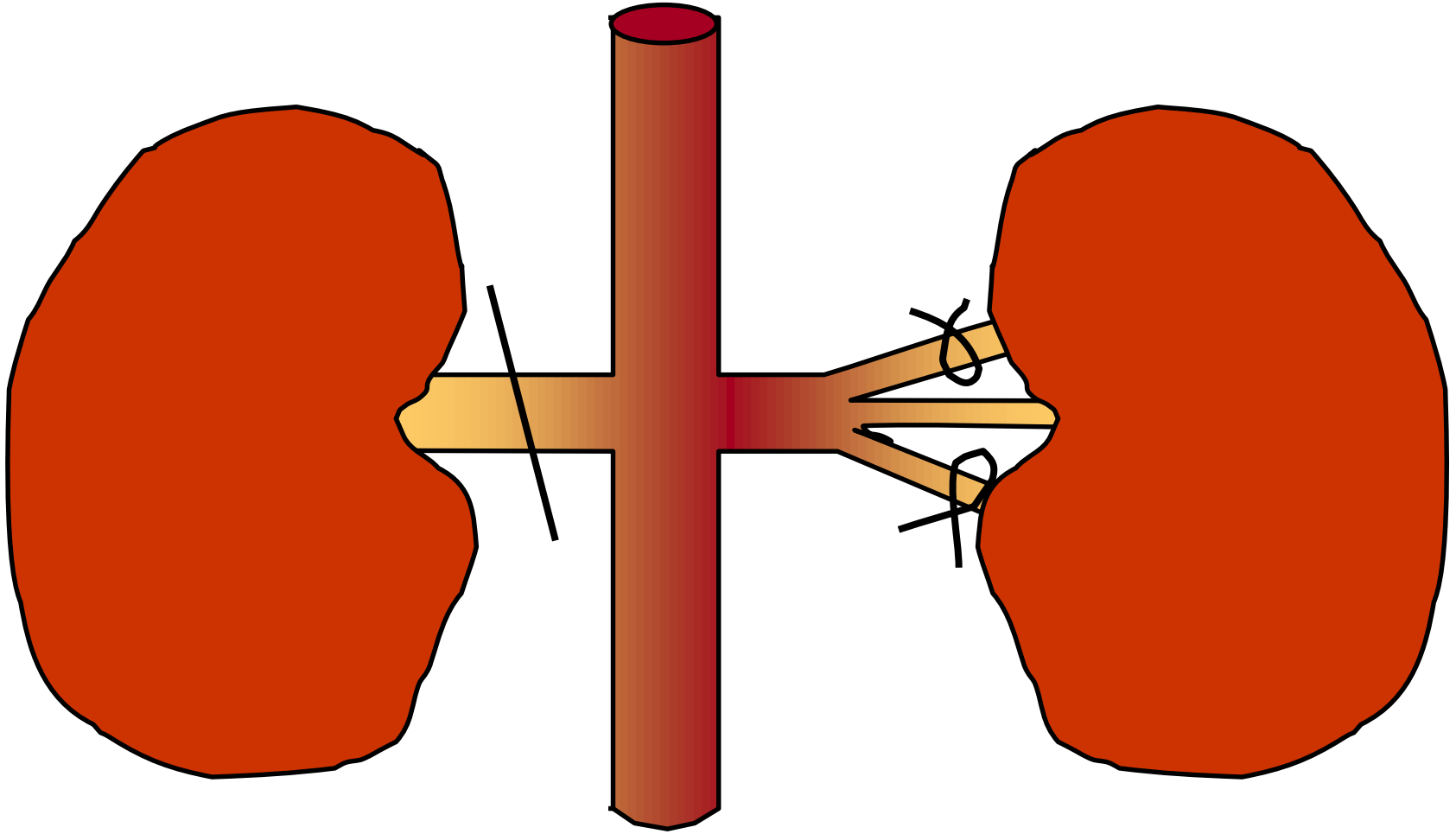
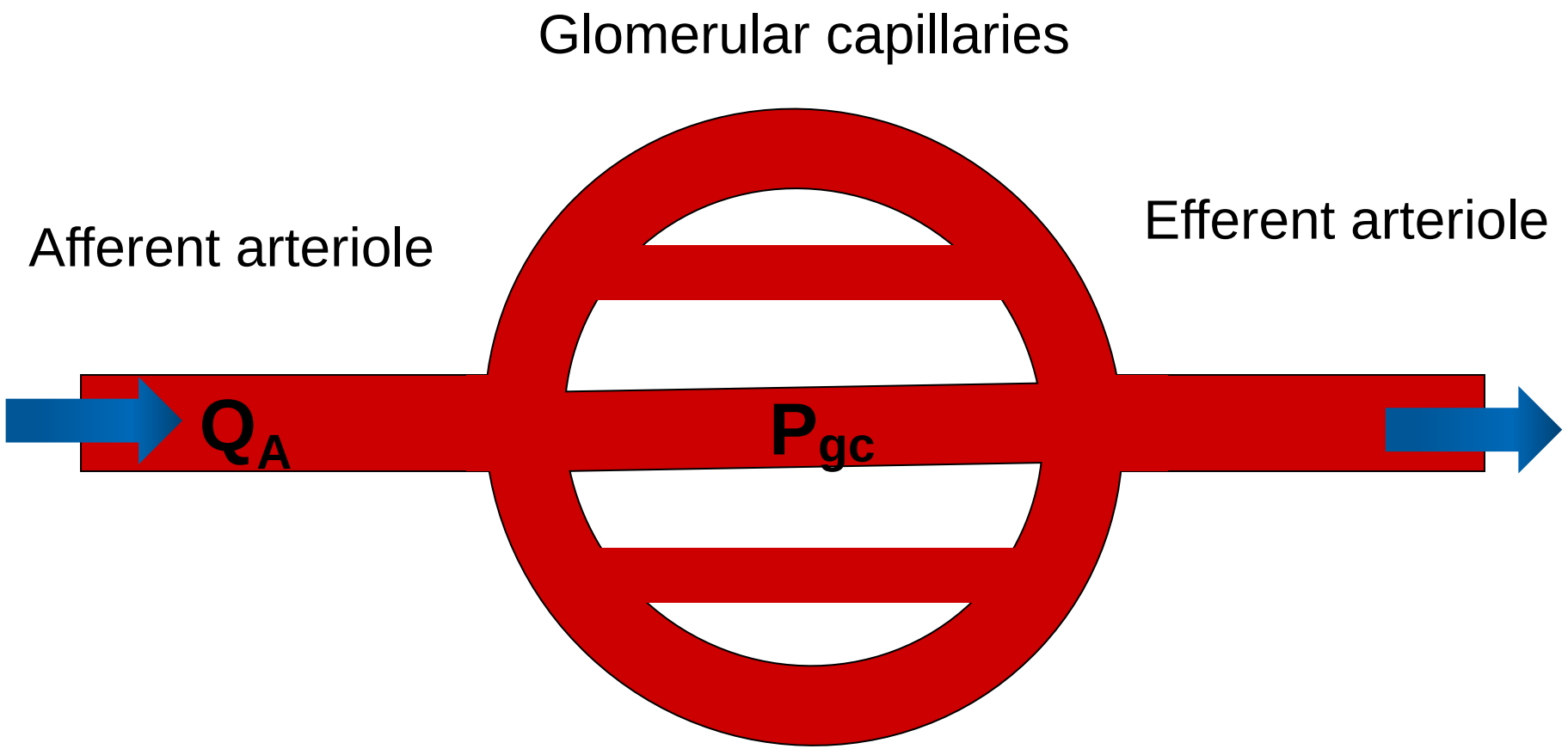
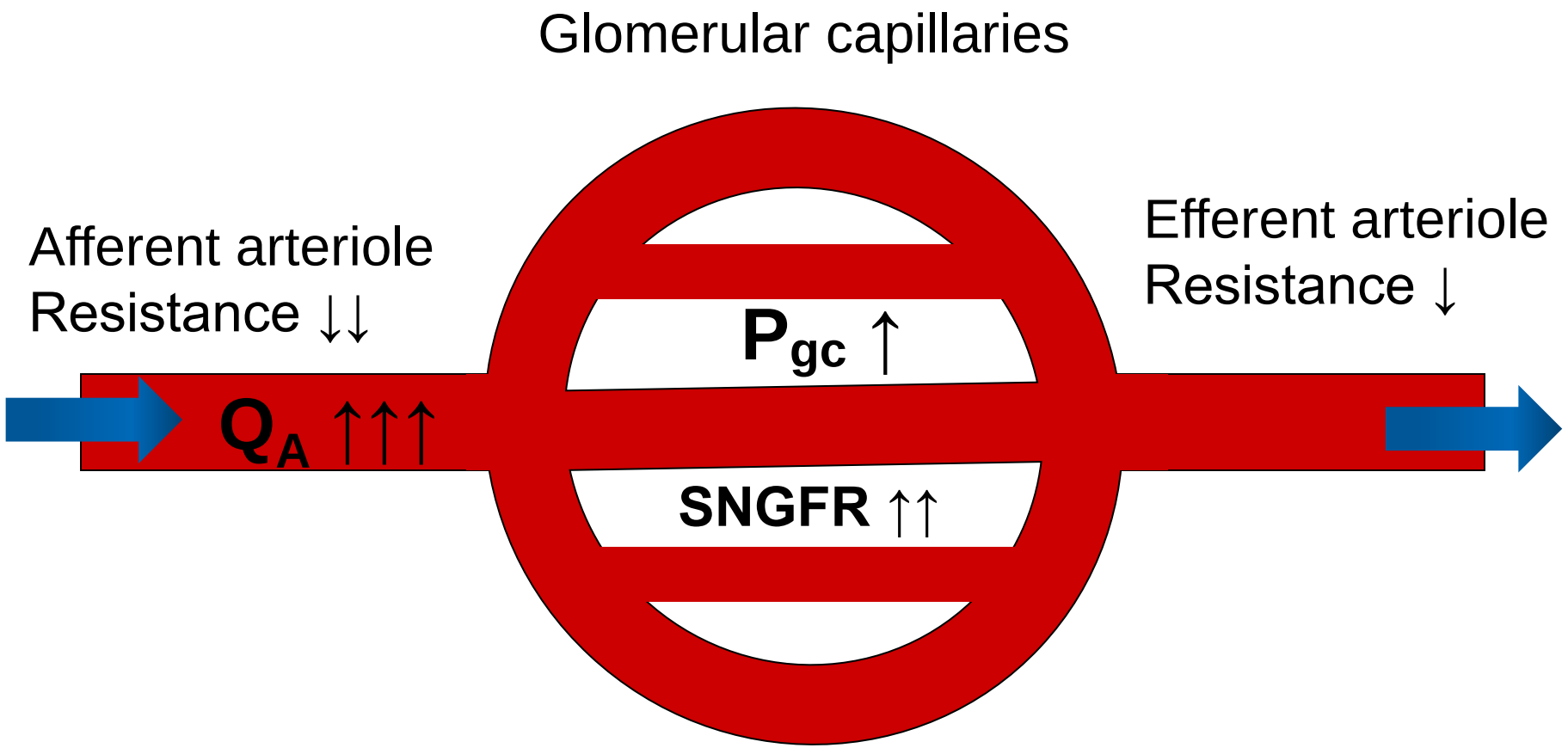
5/6 Nephrectomy Model



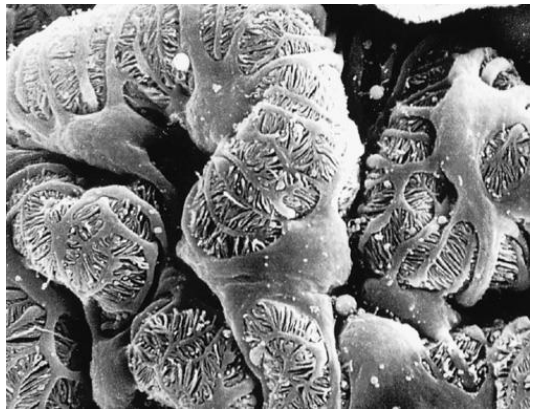
Glomerular Haemodynamics



Changes after 5/6 Nephrectomy



Mechanical Stress after 5/6 Nephrectomy



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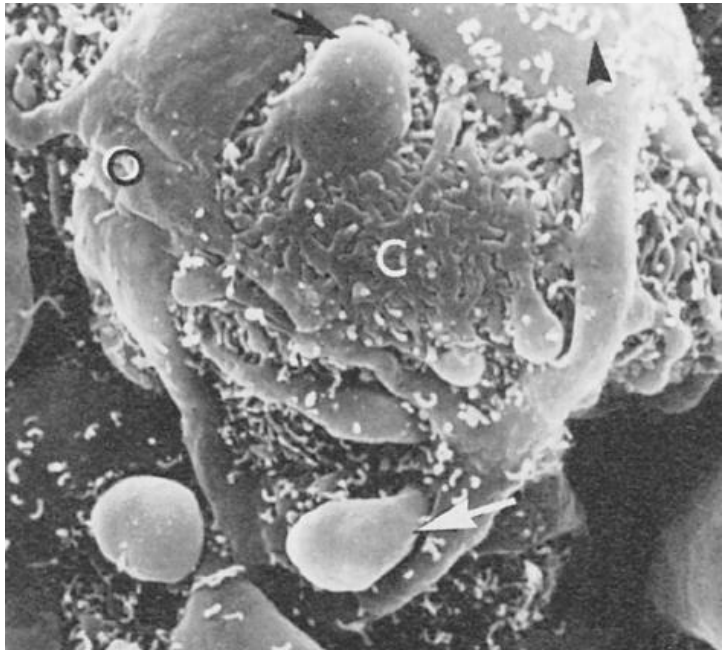
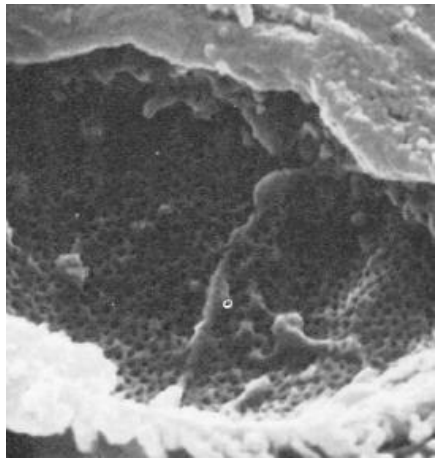


1 week after
5/6 nephrectomy

Podocyte



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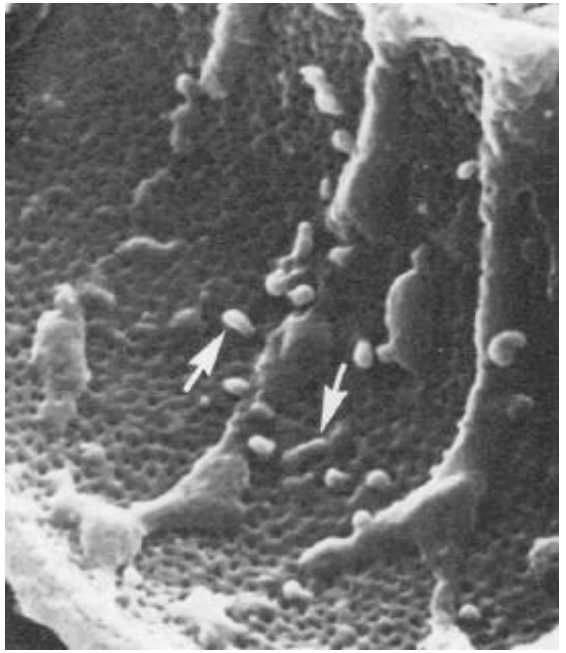


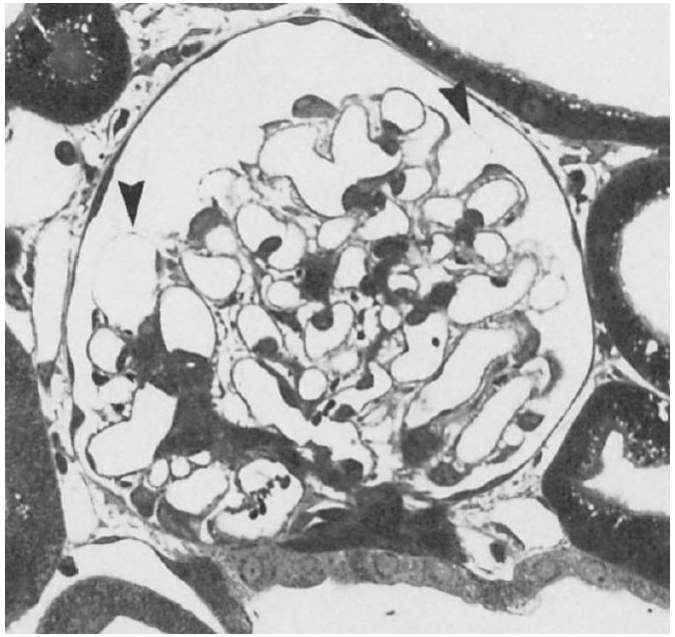
1 week after
5/6 nephrectomy

Endothelial cell

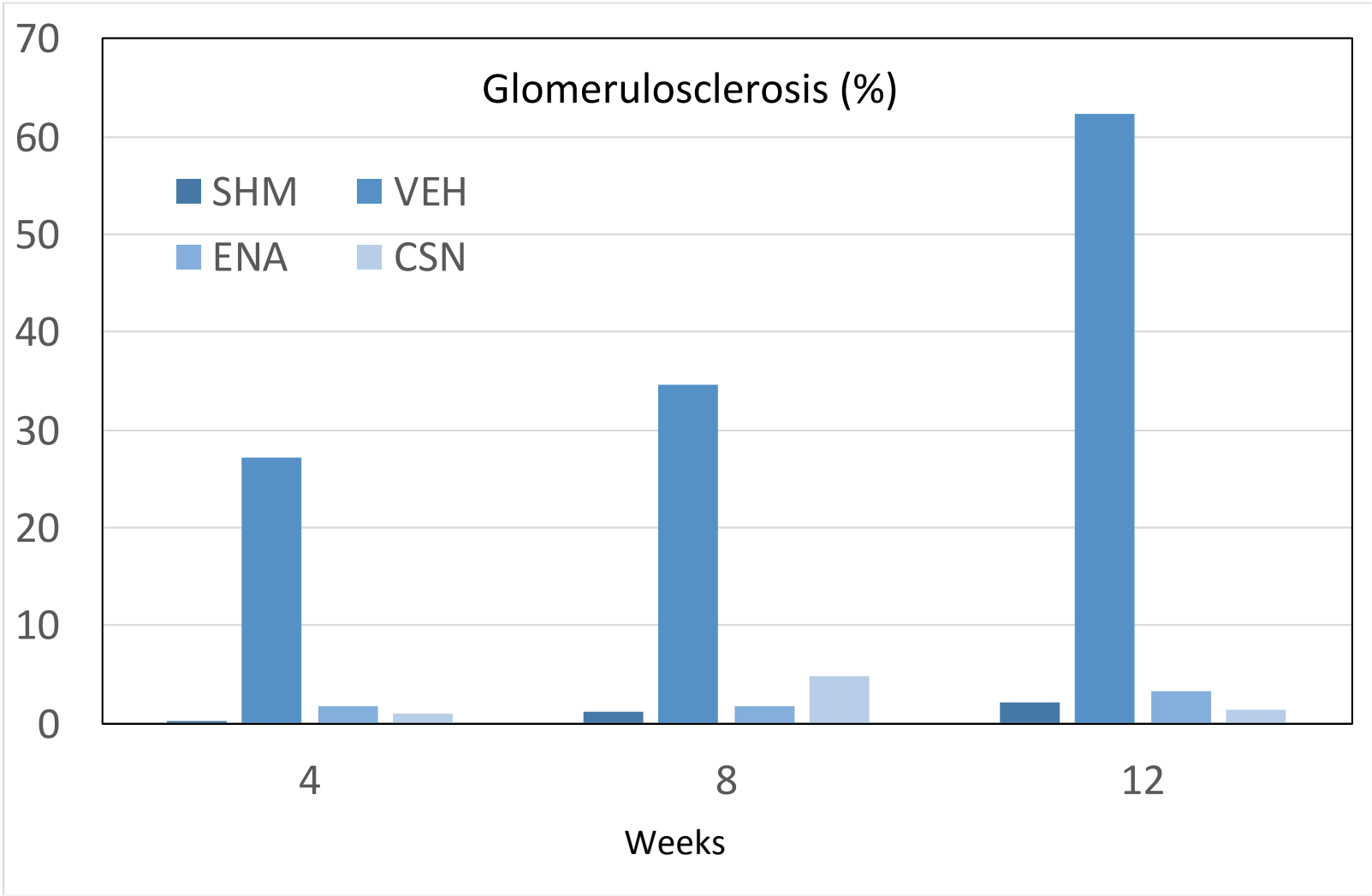
Hostetter et al. AJP10:F85-93; 1981

Progression after 5/6 Nephrectomy

1 Week

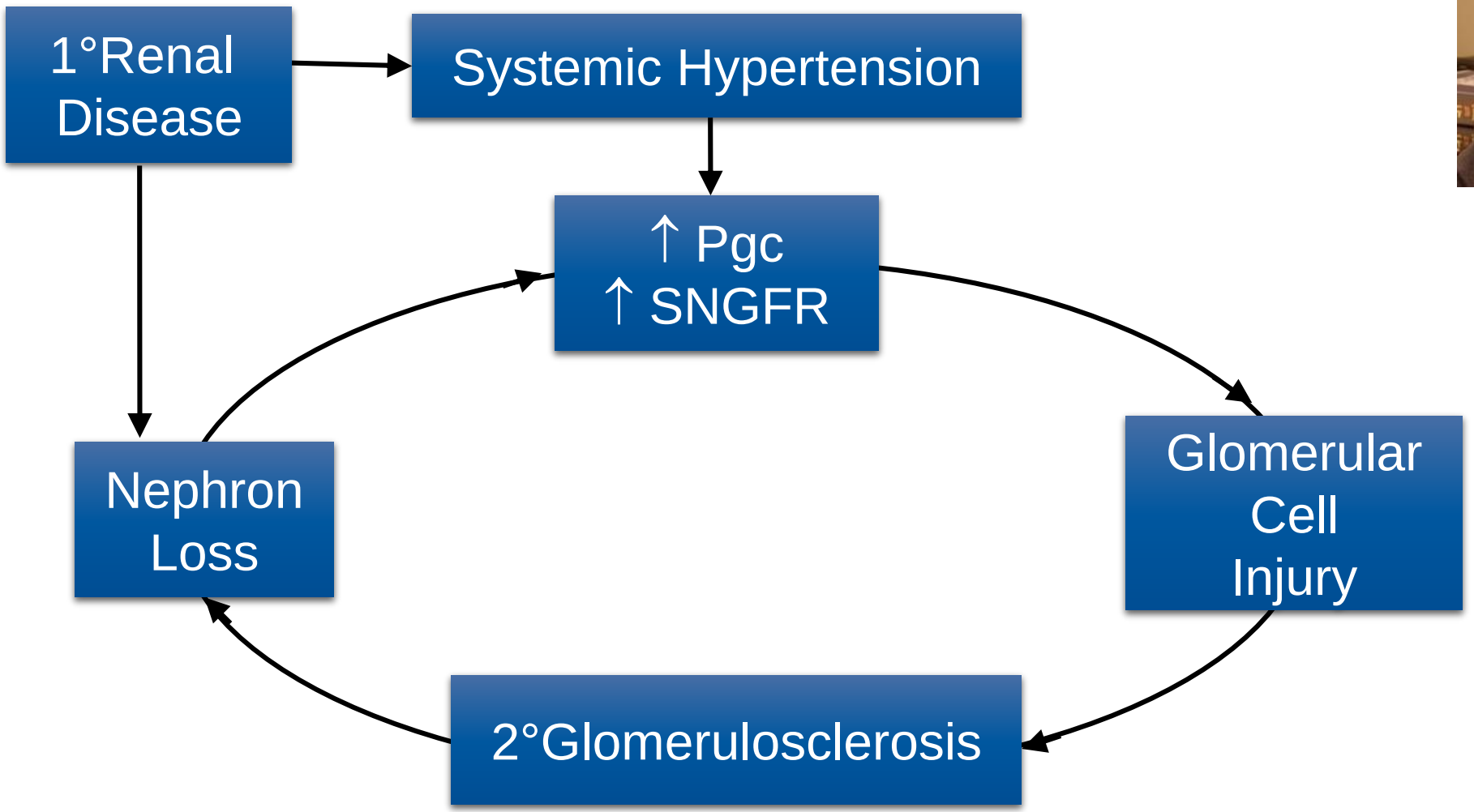


Hostetter et al. AJP10:F85-93; 1981



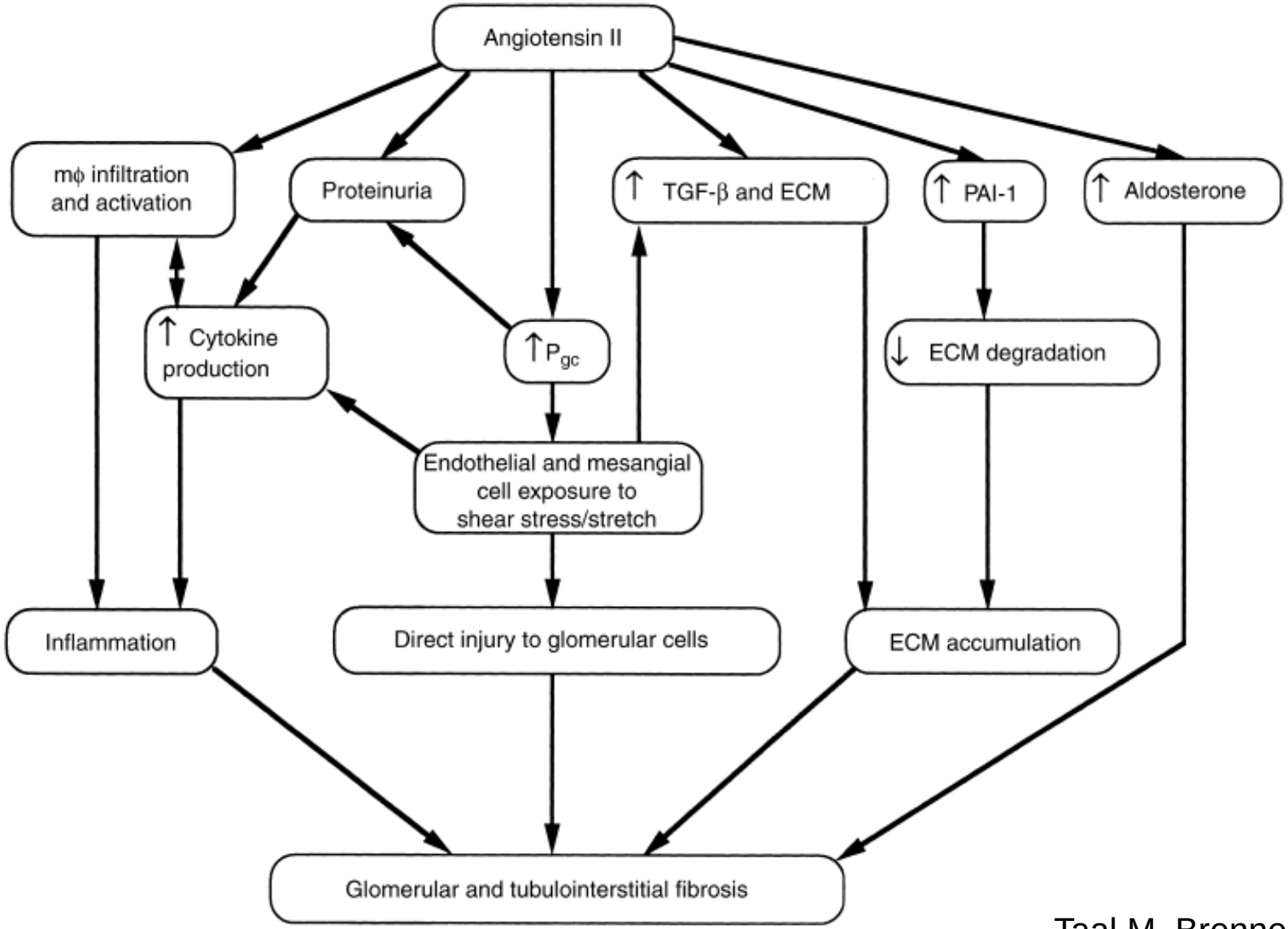
Taal et al. KI 58: 1664-76; 2000

The Haemodynamic Theory



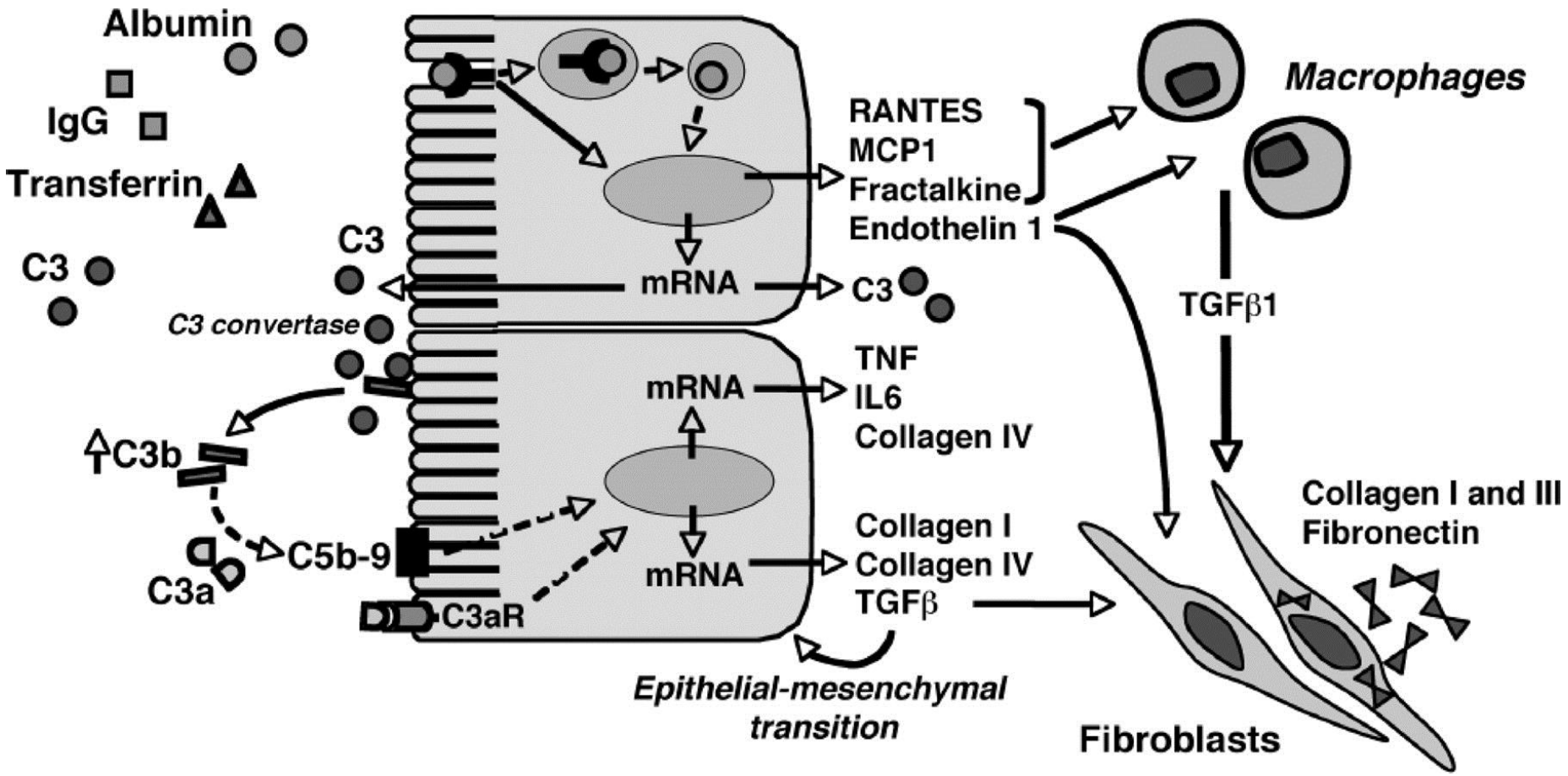
Brenner et al. NEJM 307:652-659;1982

Angiotensin II



Taal M, Brenner BM. KI 57:1803; 2000

Proteinuria



Abbate, M. et al. J Am Soc Nephrol 2006;17:2974-2984

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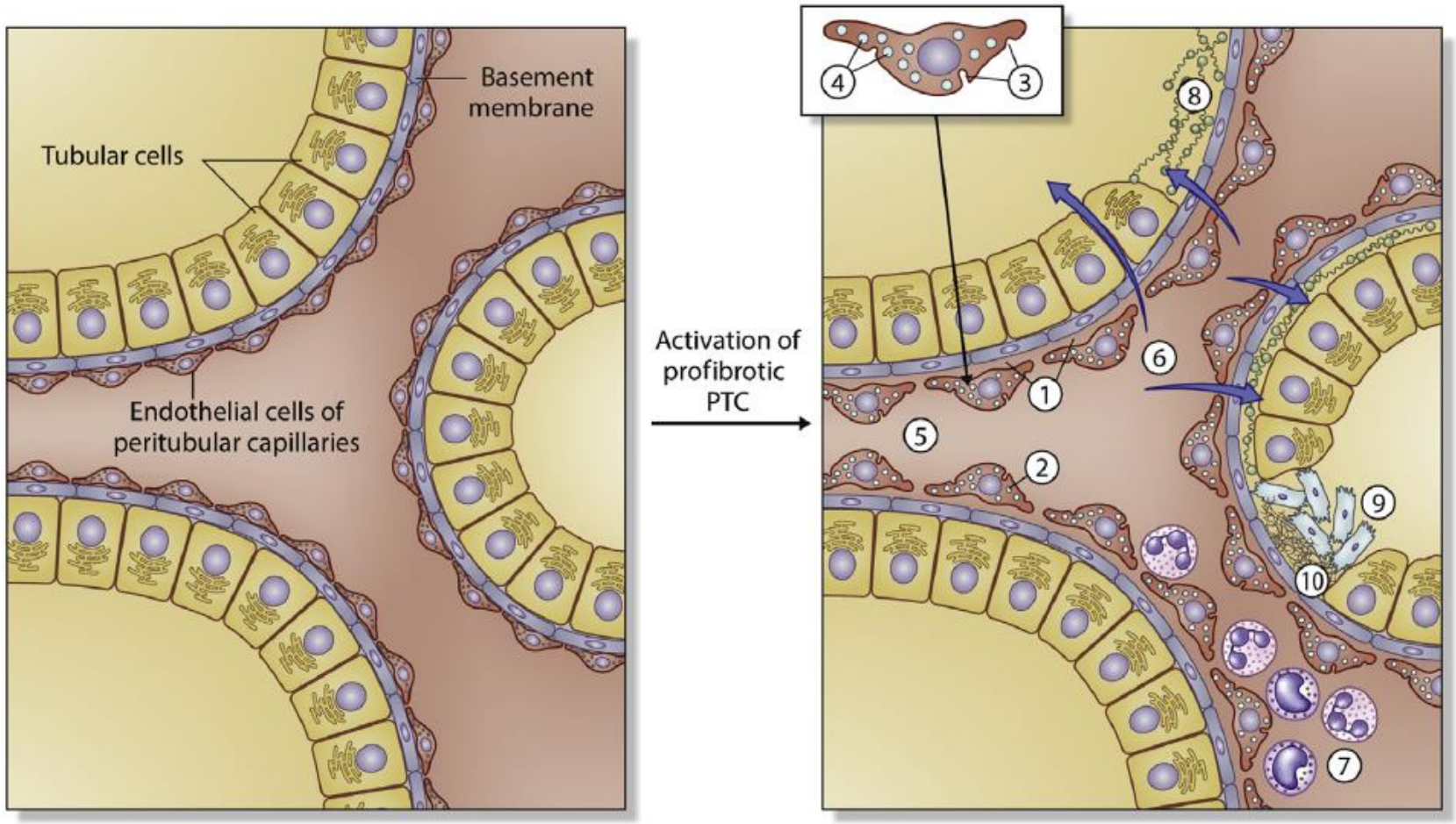
Loss of peritubular capillaries



Hohenstein B et al. Kidney Int 2017; 91: 9-11

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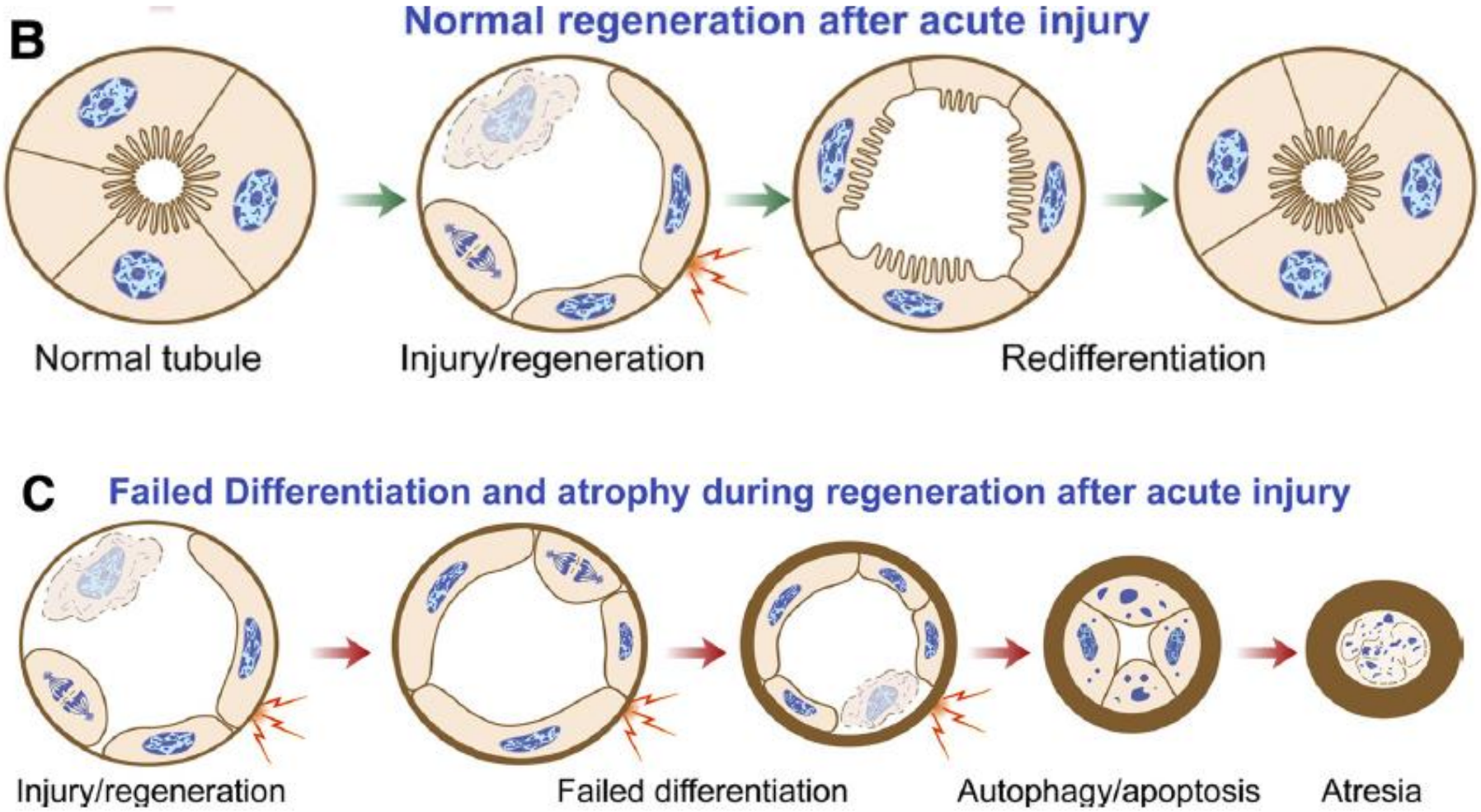
Acute Kidney Injury



Venkatachalam MA et al. AJP 298: F1078-94; 2010

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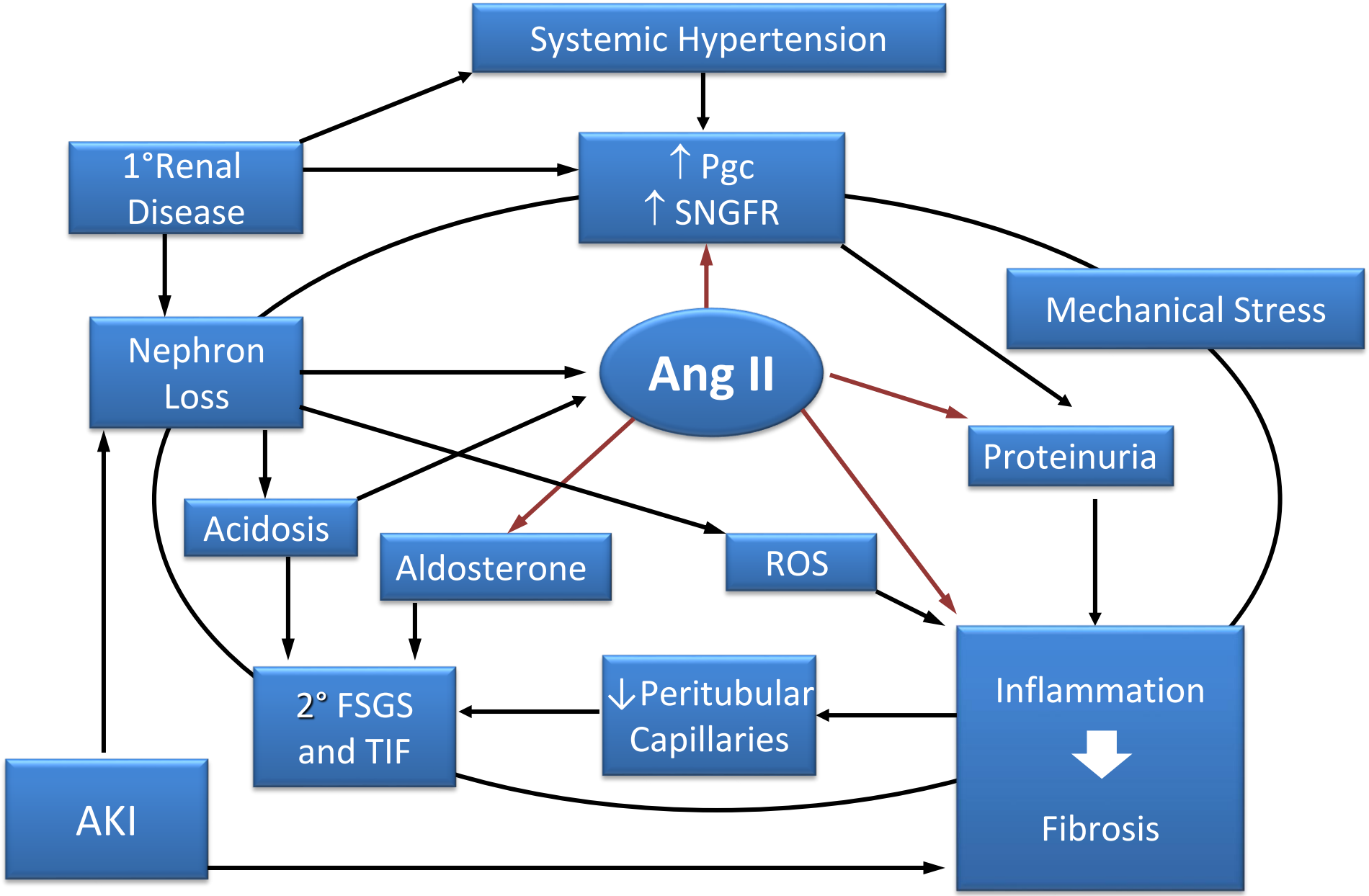
CKD Progression 2019



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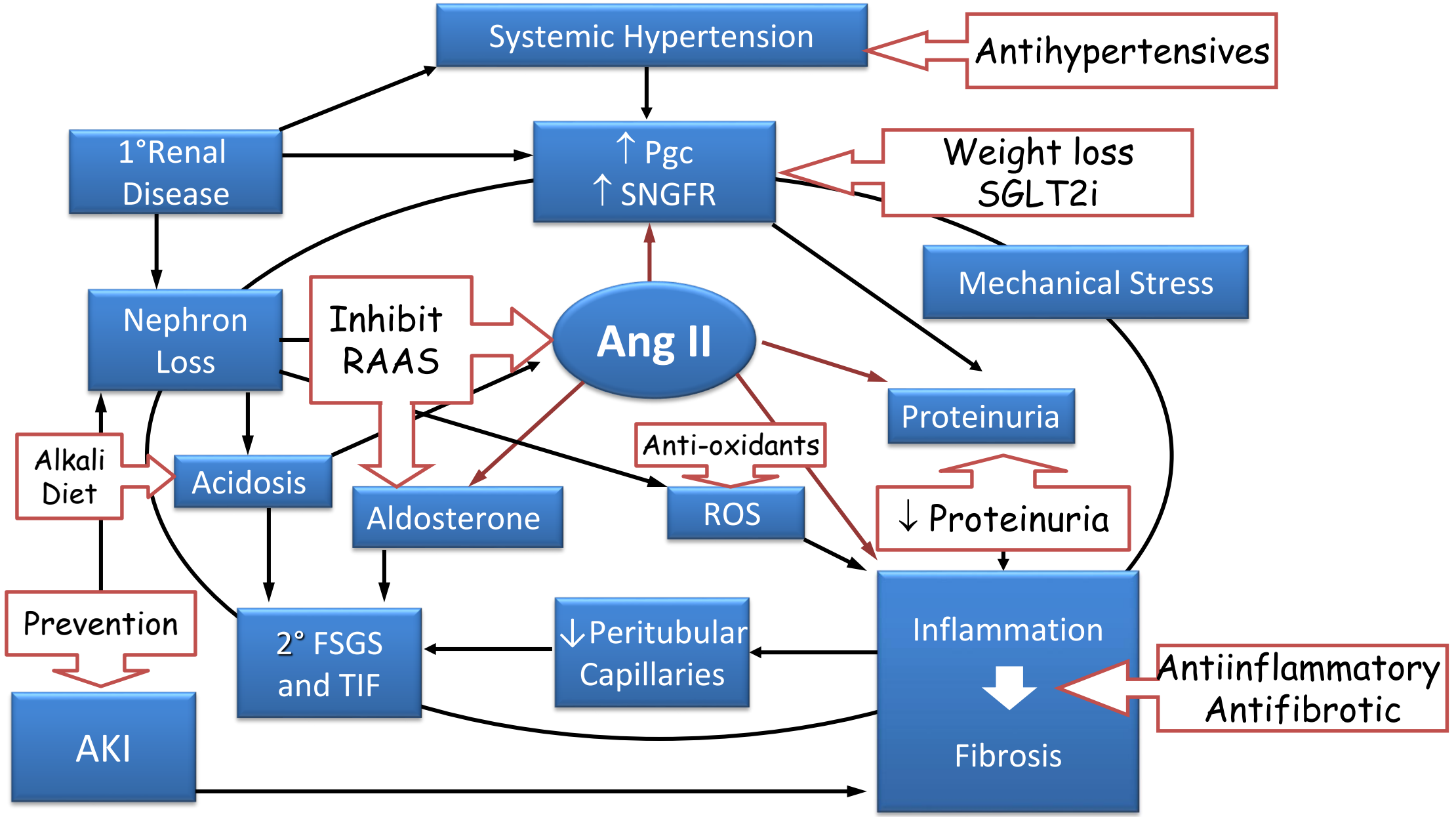
CKD Treatment Approach



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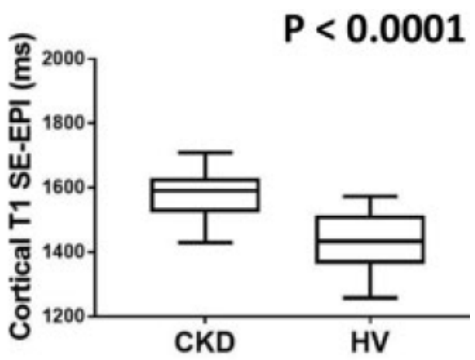
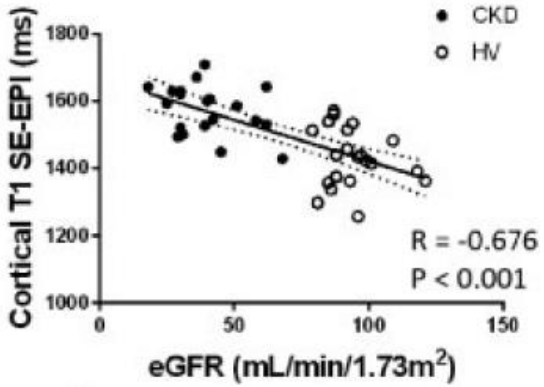
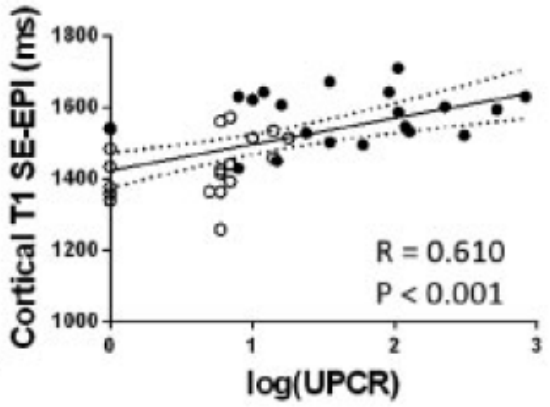
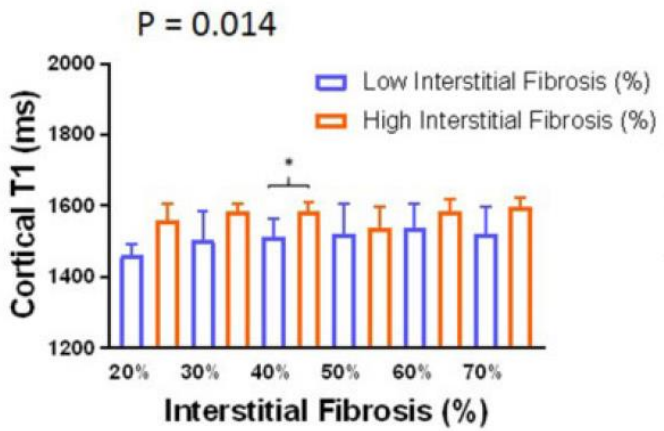
MRI measures and pathology

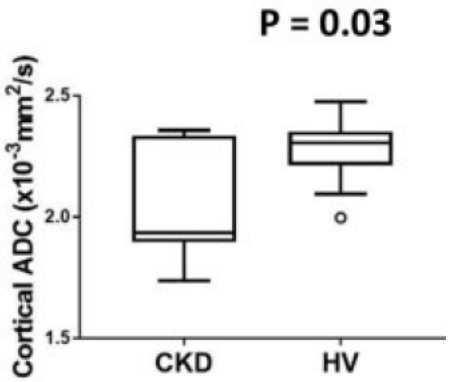
Buchanan C et al. NDT June 2019 ePub

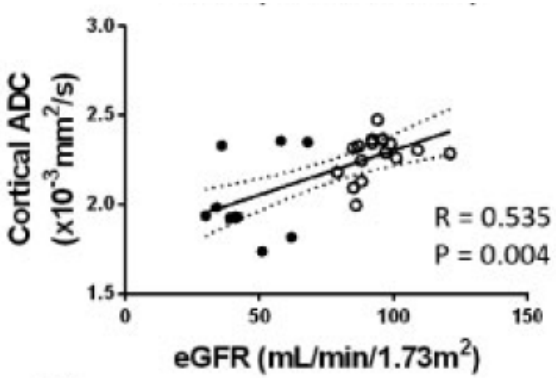


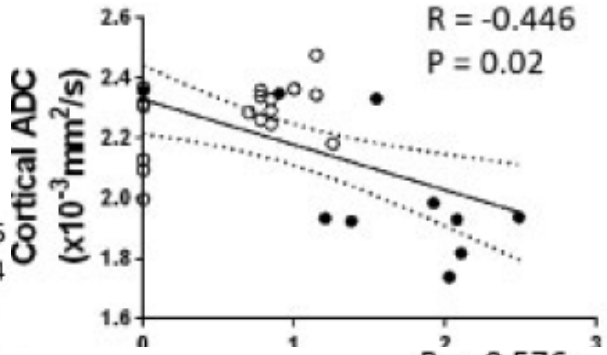


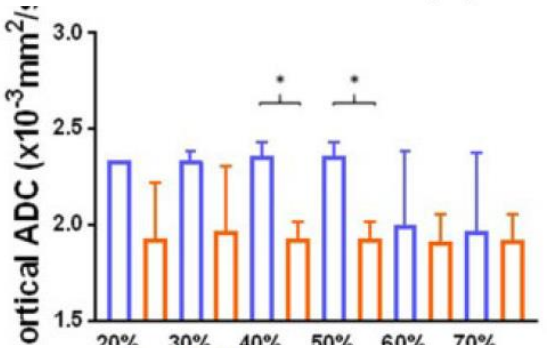


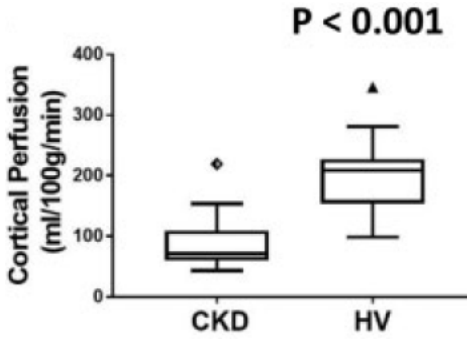


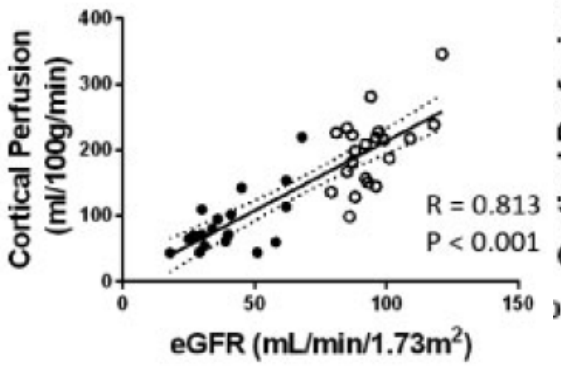


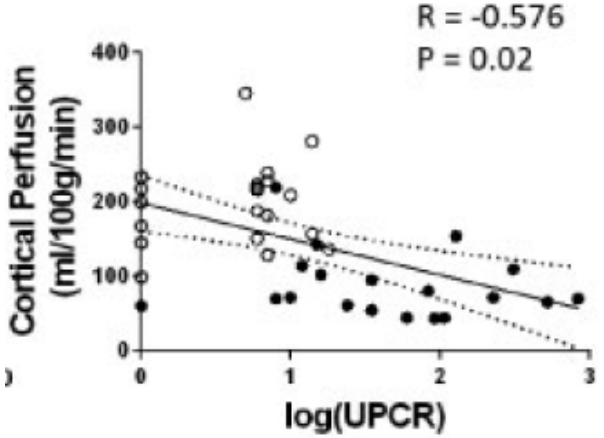


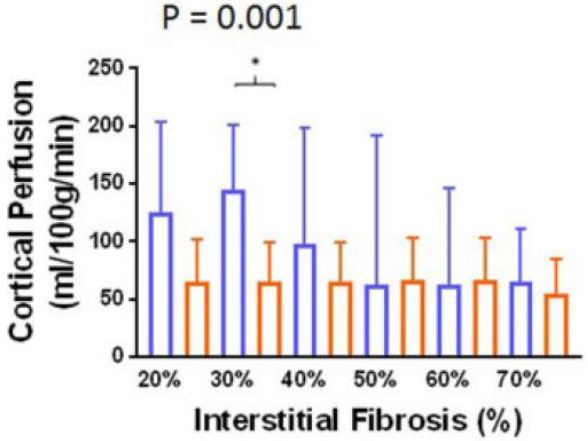












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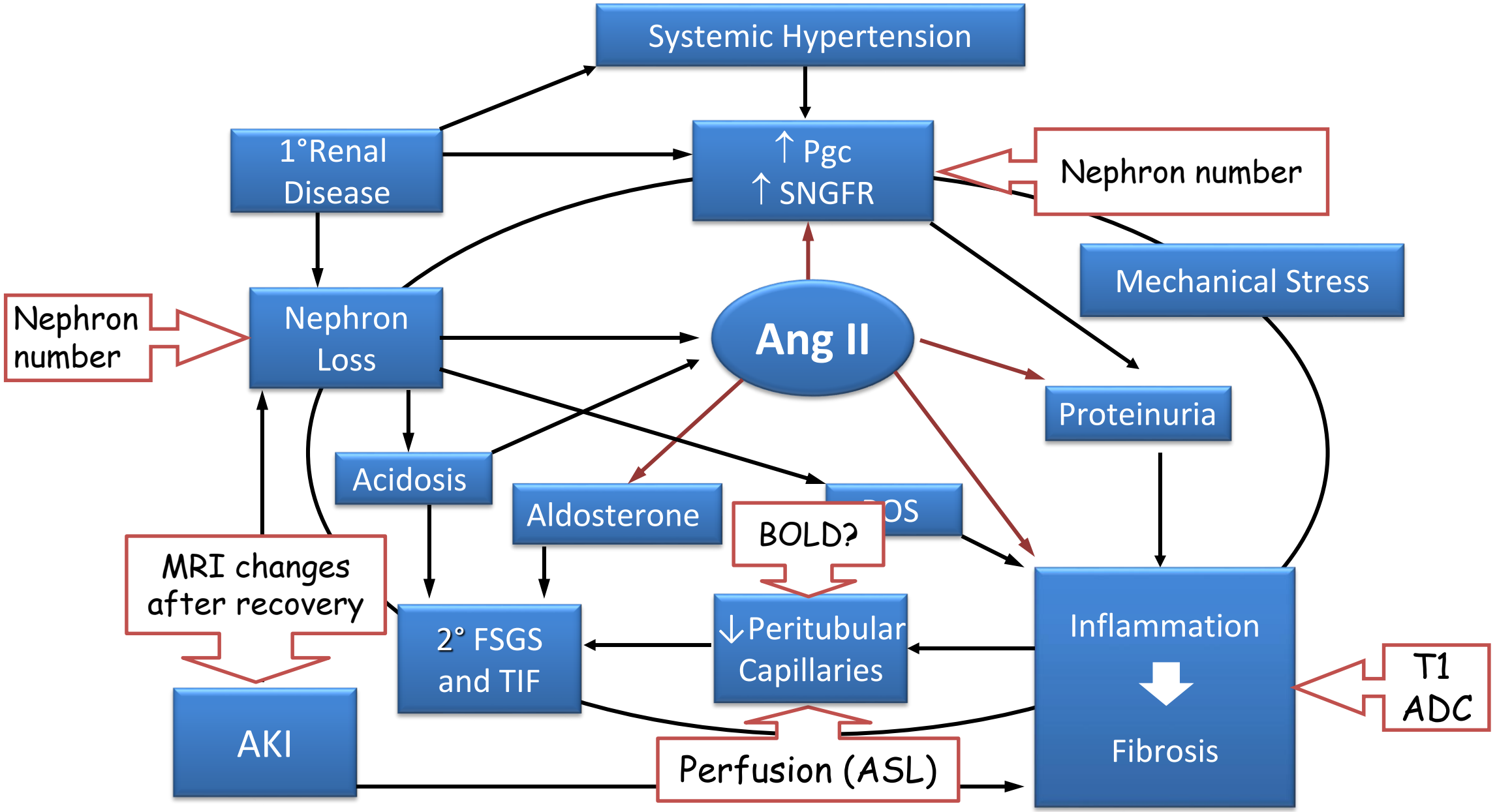
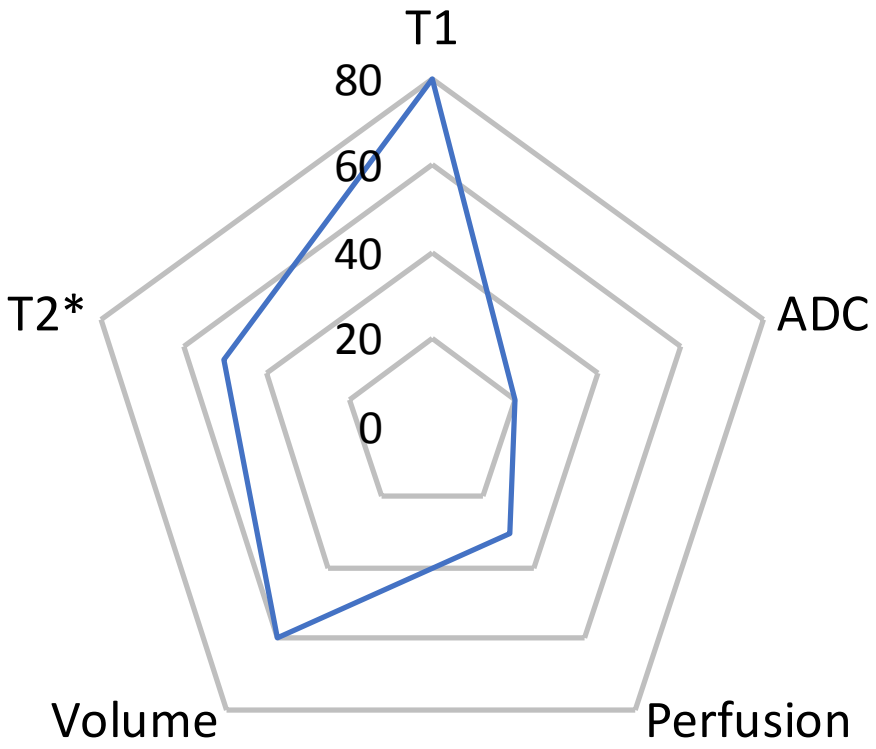
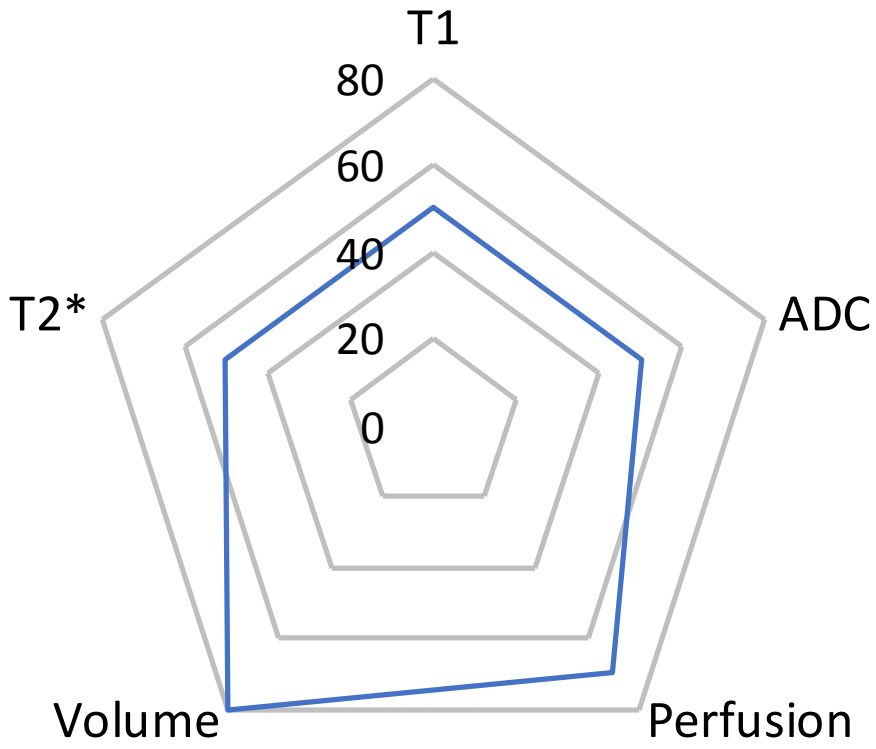
MRI measures and CKD Progression



Multiparametric assessment



End-stage kidney disease



Inflammation but may respond to therapy?