IgA Nephropathy

Objective: IgA nephropathy (IgAN) is the most common form of primary glomerulonephritis, and often aggravates by mucosal infection. Secretory IgA (SIgA) is the dominant immunoglobulin in mucosal immunity, and is deposited in the mesangium in IgAN. The biological effects of SIgA on mesangial cells are poorly understood, and the mechanism is still not clear.

Methods: SIgA was purified from the saliva of IgAN patients with glomerular SIgA deposition (P-SIgA). And polymeric IgA (pIgA) was isolated from the serum of IgAN patients without its deposition (P-pIgA). In addition, the saliva and serum of healthy volunteers were collected to purify SIgA and pIgA as controls (N-SIgA and N-pIgA). The biological effects of SIgA and pIgA on human mesangial cells (HMCs) were compared. We also studied the molecular mechanism of microRNA regulating the inflammatory effects of SIgA on HMCs using dual-luciferase assay.

Results: Fifty-five of 176 patients had SIgA deposition in glomerular (Figure 1). P-SIgA stimulated HMCs at a higher ratio of proliferation compared with N-SIgA ($P < 0.05$). P-SIgA stimulated HMCs to release more interleukin (IL)-6, IL-8, monocyte chemotactic protein 1, transforming growth factor-$eta$1 and fibronectin at protein synthesis (by 2-, 1.6-, 1.9-, 1.3- and 1.5-fold, respectively) and mRNA expression (by 2.3-, 1.4-, 2.1-, 2.4- and 1.5-fold, respectively), when compared with N-SIgA ($P < 0.05$ for all). The proliferation and productions of IL-6, IL-8, fibronectin in mesangial cells stimulated by P-SIgA were significantly lower than that stimulated by P-pIgA ($P < 0.05$ for all). miR-16 targeted the 3'-untranslated region of IL-6 and suppressed its translation in mesangial cells induced by SIgA (Figure 2).

Conclusion: The biological effects of SIgA on mesangial cells differ from those of pIgA. SIgA stimulates mesangial cell proliferation and production of proinflammatory cytokines. IL-6 production is regulated by miR-16 in mesangial cells.

http://dx.doi.org/10.1016/j.hkjn.2015.08.086

Xuanfeibushen Decoction Alleviates Kidney Damage by Regulating Th17/Treg Cells in α-HS Infected IgA Nephropathy Mice

Objective: The syndrome of asthenia in origin and sthenia in superficiality is considered as the important mechanism of IgA nephropathy (IgAN) in Traditional Chinese Medicine, and Xuanfeibushen Decoction (XD) is used in treating IgAN. The Th17/Treg imbalance plays an important role in IgAN, but it is
unknown whether the effect of XD is involved to regulating the Th17/Treg balance, and the aim of study is to investigate the relationship between them.

**Methods:** Experimental mice of IgAN (IgAN mice) were established. IgAN mice were infected with Alpha-Hemolytic streptococcus (HS-IgAN mice), and then IgAN mice and HS-IgAN mice were treated with XD. Th17 cells and regulatory T cells (Tregs) in kidneys were tested by flow cytometry. IL-17A, IL-6 and IL-21 in kidney were determined by Elisa.

**Results:** The IgAN mice revealed IgA depositing, decreased frequency of Tregs, increased frequency of Th17 and Th17/Treg ratio. Th17 related cytokines IL-17A, IL-6 and IL-21 in renal were all increased in IgAN mice. Manifestations in HS-IgAN mice were more severe than in IgAN mice, but alleviated in XD -treated groups.

**Conclusion:** The results suggested that Th17/Treg functional imbalance in IgAN was worsen by HS-infection and XD may play a potential role by restoring the balance of Th17/Treg in treating IgAN.

http://dx.doi.org/10.1016/j.hkjn.2015.08.087