CD4+CD25+ Treg cells may be useful for the treatment of IgAN

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Immune globulin A (IgA) nephropathy (IgAN) is the most common glomerulonephritis in the world. Although this disease was once considered to have a good prognosis, it has more recently been observed that 30-40% of IgAN patients’ progress to end-stage renal disease (ESRD) within 20 years. Recent studies have shown that CD4+CD25+ Treg cells are of critical importance to the maintenance of tolerance by inhibiting the activation and proliferation of auto reactive T cells. CD4+CD25+ Treg cells are regulators in nearly all of the animal models of human organ-specific diseases, transplant rejection and allergic diseases. A numerical and/or functional deficit of CD4+CD25+ Treg cells might trigger the development of disease. Depletion of the minor (about 10%) CD4+CD25+ Treg cells results in the development of organ-specific autoimmunity. Autoimmune diseases can be prevented by reconstitution of the animals with CD4+CD25+ Treg cells. Powrie and colleagues demonstrated that transfer of CD4+CD25+ Treg cells protected mice from the development of inflammatory bowel disease and even reversed established gastrointestinal inflammation. The most notable immunomodulatory property of CD4+CD25+ Treg cells is their ability to limit the development of a pro-inflammatory CD4+Th2 phenotype; this inhibition is characterized by reduced cytokine production. Abnormality of peripheral T cell and increased IgA can result from an inappropriate balance between allergen activation of CD4+CD25+ Treg cells and effector Th2 cells. This imbalance could result from a deficiency in suppression by CD4+CD25+ Treg cells or strong activation signals that overcome such regulation. Much evidence has shown that the tonsils are closely related to IgAN. Tonsillitis may induce nephritis or make nephritis. Tonsillectomy can improve the urinary findings, keep stable renal function and have a favorable effect on long-term renal survival in some IgAN patients. Our experiments have shown that the number of CD4+CD25+ Treg cells was significantly lower in tonsils and peripheral blood in IgAN; tonsillar CD4+CD25+Treg cells from IgA nephropathy patients have decreased immunosuppressive activity in experimental IgA nephropathy rats. Tonsillectomy may improve immune function, increase CD4+CD25+ Treg cells leading to attenuation of the severity of IgAN. Transfer of CD4+CD25+ Treg cells protected rats from the development of IgAN. Altering CD4+CD25+ Treg cell numbers and/or enhancing CD4+CD25+ Treg responses may be useful in the treatment of IgAN.

Biography
Hongdong Huang, Medicine Doctor (PhD in Medicine), at present is an Associate Chief Physician and Vice Director at Department of Nephrology in Beijing Shijitan Hospital. In 2007, he received a Doctoral degree from Xiangya School of Medicine. He completed his Post-doctoral fellowship at Harvard Medical School/Massachusetts General Hospital from 2011 to 2013. Currently he is in charge of 5 research projects. Recently, He as published more than 10 papers in reputed journals and has been serving as Editorial Board Member of repute.

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