KSN-17-P175

Tripterygium glycoside up-regulat autophagy to protect the podocyte injury induced by puromycin aminonucleoside

Jianguang GONG, Juan JIN, Li ZHAO, *Qiang HE

Department of Nephrology, Zhejiang Provincial People's Hospital, China(P.R.C)

Objectives : Tripterygium glycoside (TG), one of the active ingredients of Tripterygium wilfordii Hook F (TwHF), a widely used Chinese medicinal plants, has immunosuppressive and anti-inflammatory effect.More and more studies indicatied that TG was an effective and potential therapeutic option for nephrotic syndrome. However, studies about the mechanism research are still rare,and the effect of TG on autophagy and apoptosis in podocyte injury remains elusive. The present study was undertaken to assess the potential role of activation of autophagic and phosphatidylinositol 3-kinase (PI3K)/AKT kinase pathways in the podocyte protective effect of TG.

Methods : The classical puromycin aminonucleoside (PAN)-induced podocyte injury model were used to evaluate the effect of TG on podocyte injury. Chloroquine(CQ), a well-known inhibitor of autophagy,and LY294002, a well-known inhibitor of PI3K,were used to compare the effect. Conditionally immortalized differentiated mouse podocyte cells (MPC5) were treated with different drugs for a certain time. Cell viability was determined by CCK-8 assay. The expression of autophagic markers ,LC3 and p62,were detected by western blot. Transmission electronic microscopy was used to observe the formation of autophagosome.The apoptosis of podocyte was detected by Annexin V/PI. And the expression of PI3K , AKT and p-AKT were detected by western blot to evaluate the the activation of PI3K/AKT pathway.

Results : We found that the expression of LC3 was significantly increased in TG treated podocytes, whereas the expression of p62 was decreased markedly.Furthermore,more autophagosomes appeared in cytoplasm of podocyte in TG and TG+PAN group compared with PAN group.The podocyte apoptotic rate was significantly decreased when the podocytes were treated with TG compared with PAN and PAN+CQ group .In addition,our study showed that the expression of PI3K and AKT had no significant difference between PAN group,TG group and PAN+TG group.Howerver,the expression of p-AKT significantly increased in TG+PAN and LY294002+ TG+PAN group compared with PAN and LY294002+PAN group respectively.

Conclusions : This study demonstrated that Tripterygium glycoside protects

podocyte from apoptosis in PAN induced podocyte injury, partially through up-regulation of autophagy, and the activation of PI3K/AKT pathway plays a important role in regulation of autophagy.

Keywords : tripterygium glycoside, autophagy, apoptosis, PI3K/AKT pathway, podocyte