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SIGNIFICANCE OF THE EXPRESSION OF REGULATORY T CELLS IN CARDIOMYOPATHY RATS

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Objectives The purpose of this study is to explore the effect of immunolesion in the pathogenesis and progression of dilated cardiomyopathy by investigating the changes of T regulatory cells in PBMC from adriamycin-induced dilated cardiomyopathy rats.

Methods 50 healthy male SD rats were randomly divided into control group (CN, n=15) and model group (DCM, n=35). The DCM group was administered adriamycin intraperitoneally at a dose of 2.5 mg/kg, twice a week for 6 weeks while the control group received an equivalent volume of 0.9% Sodium Chloride Injection alone intraperitoneally. At 0, 3 and 8 week, PBMC of two groups were obtained and stained by monoclone fluorescent antibody, then the alone or combined expression of CD25 and FoxP3 in $CD4^+$ T lymphocytes were examined by flow cytometer. While echocardiographic measurements such as LVIDd, LVIDs and LVEF were obtained at 0 and 8 week. At last, fresh hearts were removed when the survival rats were killed and myocardial tissue sections were obtained and stained with Van-Gieson (VG) to analyse the histopathology chang

Results Echocardiographic measurements revealed that LVIDd and LVIDs of DCM group were enlarged and LVEF of DCM group were decreased compared with control group, and there were statistically significant ($p<0.01$). The myocardial tissue sections presented that cadiocytes were hypertrophy, intercellular substance were swelling and widening, and myocardial fibrosis formed obviously than that of the control group, which showed that rat models of adriamycin-induced dilated cardiomyopathy were established. Peripheral frequencies of $CD4^+CD25^+$Treg, $CD4^+Foxp3^+$Treg and $CD4^+CD25^+Foxp3^+$Treg cells were significantly decreased in DCM group compared with in control group ((6.95±1.37)% vs (8.32 ±1.46)%, p=0.013), ((8.08±0.98)% vs (9.48±1.58)%, p=0.007), ((4.76±0.82)% vs (6.617±0.991)%, p=0.000)).

Conclusions The rat models of adriamycin-induced dilated cardiomyopathy were established. The frequencies of $CD4^+CD25^+$, $CD4^+Foxp3^+$and$CD4^+CD25^+Foxp3^+$Treg were significantly lower in DCM group. This alteration may lead the function of inhibit-autoimmune down and the immune activation, which brought about autoimmunity cadiocyte injury and may be associated with the pathogenesis and process of dilated cardiomyopathy.