

## عنوان مقاله:

The combination of vitamin D3 and erythropoietin alleviates acute kidney injury induced by ischemia-reperfusion via inhibiting inflammation and apoptosis

## محل انتشار:

مجله علوم پایه پزشکی ایران، دوره 24، شماره 2 (سال: 1400)

تعداد صفحات اصل مقاله: 8

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## خلاصه مقاله:

Objective(s): Acute renal ischemia may cause acute renal dysfunction due to lack of blood supply; the manifestations are renal tubular cell apoptosis, infiltration of macrophages, and microvascular destruction. Many studies have shown that erythropoietin (EPO) and vitamin D3 (VD3) can be used to prevent or treat renal ischemia-reperfusion (I/R) injury, and VD3 may interact with EPO. In the present study, the effects of the combination of VD3 and EPO in I/R acute kidney injury were studied. Materials and Methods: Rats were divided into 5 groups: sham-operated (SHAM), AKI without treatment (AKI-control), AKI treatment with VD3(AKI+VD3), AKI treatment with EPO(AKI+EPO), AKI treatment with VD3 and EPO(AKI+VD3+EPO). The effects of the combination of VD3 and EPO on AKI were assessed by histologic, inflammation, and apoptosis studies. Results: The degree of damage in renal tissue was significantly reduced in VD3, EPO, and combined groups. Combination therapy with VD3 and EPO markedly improved Creatinine clearance rate (CCr). The combined treatment group showed the lowest F4/80+ and CD68+ expressions. The expression of Bcl-2 in the combined treatment group was higher than those in VD3 group and the EPO group, while Bax's expression goes in the opposite direction. Conclusion: This provides further evidence that VD3 and EPO have beneficial effects in I/R injury via anti-inflammatory and anti-apoptosis pathways. The synergistic protective effect of VD3 and EPO is of profound significance in the development of new strategies for the prevention and treatment of (acute kidney injury (AKI

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