

عنوان مقاله:

Co-administration of $\nu,25$ -dihydroxyvitamin D α and infliximab improves colitis in mice by modulating Treg differentiation

محل انتشار:

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خلاصه مقاله:

Objective(s): The combination of TNF- α inhibitors and vitamin D in colitis remains to be elucidated. In the present study, we revealed the benefit of infliximab (IFX) and vitamin D in a mouse model of Ulcerative colitis (UC). Materials and Methods: A dextran sulfate sodium-induced colitis model was used. The therapeutic effect of the combination was evaluated by symptom and histopathology analysis. The synergistic mechanism was explored by detecting the regulatory effect of the combined therapy on Regulatory T cell (Treg) differentiation. Results: IFX and $\nu,25$ -dihydroxyvitamin D α (VitD α) synergistically prevented the development of colitis by improving clinical signs, pathological and hematological manifestation, and inhibiting intestinal inflammation (decreasing TNF- α , IL- $\nu\beta$, and IL- $\nu\epsilon$). Coadministration of IFX (2.5 mg/kg) with VitD α or IFX (5.0 mg/kg) with VitD α was more effective than administration of IFX (2.5 mg/kg, 5.0 mg/kg). There was no difference in therapeutic effect between IFX (5.0 mg/kg) and VitD α + IFX (2.5 mg/kg) groups or between the VitD α +IFX (5.0 mg/kg) and VitD α + Azathioprine (AZA) groups. VitD α or combination therapy showed more powerful regulation of splenic Treg differentiation and IL- $\nu\gamma$ production than IFX alone. Moreover, VitD α alone or in combination induced higher levels of Foxp3 and IL- $\nu\gamma$ than IFX in colon tissue. In ulcerative colitis patients, serum VitD α levels positively correlated with Treg levels. Conclusion: VitD α and IFX synergistically inhibit colitis based on their powerful regulation of Treg differentiation. VitD α combined with IFX is an alternative therapy for patients who are intolerant to standard doses of IFX or combination of IFX and AZA.

کلمات کلیدی:

Colitis, Infliximab, Interleukin- $\nu\gamma$, Regulatory T cells, Vitamin D

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