

INTISARI

**Efek Pemberuan Vitamin D Terhadap Ekspansi
Myofibroblast dan Fibroblast pada Model *Unilateral
Ureteral Obstruction* pada Mencit**

Pandhu Al Afghani Harlan¹, Dwi Cahyani Ratnasari², Nur
Arfian³

¹Mahasiswa Strata 1 Fakultas Kedokteran Universitas
Gadjah Mada, Yogyakarta, Indonesia

²Bagian Anatomi, Embriologi, dan Antropologi Fakultas
Kedokteran Universitas Gadjah Mada, Daerah Istimewa
Yogyakarta, Indonesia

Latar Belakang: Prevalensi penyakit ginjal kronis (PJK) di dunia terus bertambah dengan peningkatan sebanyak 7% setiap tahunnya. Penderita PJK memiliki risiko untuk mengalami masalah kardiovaskular dan mortalitas yang tinggi. Selama satu dekade terakhir banyak penelitian yang telah membuktikan bahwa vitamin D dan analognya memiliki peran renoprotektif dan menurunkan efek cedera pada ginjal di beberapa model penyakit ginjal.

Tujuan: Mengetahui efek pemberian vitamin D terhadap ekspansi myofibroblast dan ekspansi fibroblast pada model *unilateral ureteral obstruction* (UUO)

Metode: UUO pada mencit menginduksi terjadinya fibrosis interstitial ginjal. Ekspansi myofibroblast dinilai dengan persentase fraksi area pada tampilan histologis dengan pewarnaan immunohistokimia, sedangkan ekspansi fibroblast dinilai melalui jumlah sel di preparat histologis dengan pewarnaan immunisitokimia

Hasil: Pemberian vitamin D menurunkan ekspansi myofibroblast dan ekspansi fibroblast dengan signifikan pada kelompok UUO VD dibandingkan kelompok UUO 14 ($p < 0.01$) serta terdapat korelasi yang kuat antara ekspansi myofibroblast dan ekspansi fibroblast ($r = 0,870; p < 0,01$)

Kesimpulan: Vitamin D dapat menurunkan ekspansi myofibroblast dan ekspansi fibroblast secara signifikan pada model *unilateral ureteral obstruction*. Terdapat korelasi antara ekspansi myofibroblast dan ekspansi fibroblast

Kata kunci: vitamin D, myofibroblast, fibroblast, fibrosis interstitial, *unilateral ureteral obstruction*

ABSTRACT

Effect Of Vitamin D Supplementation To Expansion of Myofibroblast And Fibroblast In Unilateral Ureteral Obstruction Model In Mice

Pandhu Al Afghani Harlan¹, Dwi Cahyani Ratnasari², Nur Arfian³

¹Medical Student Faculty of Medicine Gadjah Mada University, Yogyakarta, Indonesia

²Department of Anatomy, Embriology, and Antropology Faculty of Medicine Gadjah Mada University, Special District of Yogyakarta, Indonesia

Background: The prevalence of Chronic Kidney Disease (CKD) is increasing 7% every year worldwide. Patients with CKD have high risk of cardiovascular problems and mortality. In the last decade, many researches had shown the renoprotective role and the ability of vitamin D and its analogs to attenuate renal injury in several models of kidney diseases.

Purpose: To observe the effect of vitamin D supplementation towards expansion of myofibroblasts and fibroblasts in unilateral ureteral obstruction models

Method: UUO performed on mice induced kidney interstitial fibrosis. Expansion of myofibroblasts was measured in percentage of fraction area in specimens with immunohistochemistry staining. Meanwhile expansion of fibroblast was measured in total amount of cell shown in specimen with immunohistochemistry staining

Result: Vitamin D significantly reduced the expansion of myofibroblast and fibroblast in UUO VD group compared to UUO 14 group ($p < 0.01$) and strong correlation between expansion of myofibroblast and fibroblast did exist ($r = 0,870; p < 0,01$)

Conclusion: Vitamin D was able to reduced the expansion of myofibroblast and fibroblast in unilatertal ureteral obstruction models and there was a correlation between expansion of myofibroblast and fibroblast

Keywords: vitamin D, myofibroblast, fibroblast, kidney interstitial fibrosis, unilateral ureteral obstruction