

INTISARI

PENGARUH PEMBERIAN VITAMIN D TERHADAP CEDERA TUBULUS, KADAR KREATININ SERUM DAN EKSPRESI mRNA INTERLEUKIN 6 PADA TIKUS *SPRAGUE DAWLEY* DENGAN NEFREKTOMI 5/6 SUBTOTAL

Latar Belakang:

Gagal Ginjal Kronis menyebabkan kondisi akhir dari kerusakan ginjal yang ditandai dengan cedera tubulus, peningkatan kreatinin serum, dan peningkatan ekspresi mRNA Interleukin 6. IL-6 berperan dalam patofisiologi GGK dan cedera tubulus. Vitamin D telah diketahui mempunyai efek renoprotektif dengan mengurangi fibrosis ginjal, tetapi efek terhadap cedera tubulus, kadar kreatinin serum, dan ekspresi IL-6 belum banyak diteliti pada model GGK.

Tujuan:

Untuk mengkaji pengaruh pemberian vitamin D terhadap cedera tubulus, kadar kreatinin serum, dan ekspresi mRNA IL-6 pada tikus *sprague dawley* dengan nefrektomi 5/6 subtotal.

Metode:

Dibuat model CKD pada tikus *Sprague Dawley* jantan (200-300 gram) menggunakan metode nefrektomi 5/6 subtotal dibagi dalam 4 kelompok: kontrol (SO), SN (SN), SN + vitamin D - calcitriol 0,01 µg/mL/100 gBB (SN D1), SN + vit D – calcitriol 0,05 µg/mL/100 gBB (SN D2). Kemudian tikus diterminasi pada hari ke 14, dan dilakukan pengambilan sampel ekstraksi cDNA dan blok paraffin. Cedera tubulus dinilai dengan pengecatan PAS menggunakan skor cedera tubulus. Kadar kreatinin serum akan dinilai di laboratorium patologi klinik, dan ekspresi mRNA IL-6 dinilai menggunakan PCR.

Hasil:

Dibanding SO, pada kelompok SN didapatkan nilai yang lebih tinggi untuk cedera tubulus ($P < 0,05$), kadar kreatinin serum ($p < 0,05$) juga nilai yang lebih tinggi untuk mRNA IL-6 ($P > 0,05$). Sedangkan dibanding SN, pada kelompok SND2 didapatkan nilai yang lebih rendah untuk cedera tubulus, kadar kreatinin serum ($p < 0,05$), serta ekspresi mRNA IL-6 yang lebih rendah ($p > 0,05$).

Kesimpulan:

Vitamin D mempengaruhi skor cedera tubulus, menurunkan kadar kreatinin serum, dan menurunkan mRNA Interleukin-6 dengan efek renoprotektif dan antifibrotiknya.

Kata Kunci:

CKD, calcitriol, cedera tubulus, kadar kreatinin serum, IL-6, SN 5/6

ABSTRACT

THE EFFECT OF VITAMIN D SUPPLEMENTATION TO TUBULAR INJURY, SERUM CREATININE AND INTERLEUKIN 6 MRNA EXPRESSION IN SPRAGUE DAWLEY RAT WITH SUBTOTAL NEPHRECTOMY 5/6

Background:

Chronic kidney disease (CKD) is the end-stage of kidney damage which characterized by tubular injury, increased serum creatinine, and increased interleukin 6 mRNA expression. IL-6 has a role in the pathophysiology of CKD and tubular injury. Vitamin D is known having renoprotective effect by reducing kidney fibrosis, but the effect in tubular injury, serum creatinine value, and IL-6 expression is not clearly understood.

Aim:

This study is aimed to elucidate the role of vitamin D in tubular injury, serum creatinine, and interleukin 6 mRNA expression in *Sprague Dawley* rat with subtotal 5/6 nephrectomy model.

Method:

CKD model was made in male *Sprague Dawley* rat (200-300 gram) using subtotal nephrectomy 5/6 was divided into four groups: control (SO), SN 5/6 (SN), SN + vitamin D - calcitriol 0.01 µg/ml/100 gramBW (SN D1), and SN + vitamin D - calcitriol 0.05 µg/ml/100 gramBW (SN D2). Termination was done at day 14, and done sample harvesting; blood, RNA extraction and block paraffin. Tubular injury was graded by using tubular injury score with PAS Staining. Serum creatinin was evaluated, and IL-6 mRNA expression was evaluated using PCR.

Result:

Compared with SO, the SN group had higher score for tubular injury ($p < 0,05$), serum creatinin value ($p < 0,05$) and IL-6 ($P > 0,05$). Whilst compared to SN, in SND2 group had significant lower score for tubular injury ($p < 0,05$), significant lower value for serum creatinine ($p < 0,05$), and lower IL-6 mRNA expression ($p > 0,05$).

Conclusion:

Vitamin D have a role in tubular injury score, lowering serum creatinine value, and lowering Interleukin 6 mRNA expression with its renoprotective and antifibrotic effect.

Keywords:

CKD, calcitriol, tubular injury, serum creatinine, SN 5/6, IL-6.