

ABSTRAK

Latar Belakang: Kolestasis merupakan gangguan pembentukan atau aliran empedu. Sirosis hati menyebabkan hipertensi portal yang dapat menyebabkan splenomegali dan apoptosis sel. TNF- α adalah penginduksi apoptosis yang paling kuat. UDCA adalah agen koleretik, imunomodulator, dan pelindung sistem hepatobilier. GSH meningkatkan respon endotel dan mencegah fibrosis hati.

Tujuan: Menganalisis pengaruh kombinasi asam glutathione-ursodeoxycholic terhadap ekspresi TNF- α limpa dan indeks apoptosis limpa pada tikus *Sprague Dawley* yang diligasi pada saluran empedunya.

Metode: Penelitian ini merupakan penelitian eksperimen sejati dengan *Post Test Only Control Group Design*. Subjek penelitian adalah tikus putih *Sprague Dawley* yang dibagi secara acak menjadi empat kelompok. Kolestasis diperoleh dengan ligasi duktus biliaris komunis melalui laparotomi. Pada hari ke 22, terminasi dan diambil sampel limpa untuk pemeriksaan patologi anatomi.

Hasil: Terdapat perbedaan ekspresi TNF- α antara kelompok K dan P3; P1 dan P3, dan P2 dan P3 ($p=0,002$). Ekspresi median TNF- α paling rendah pada P3. Terdapat perbedaan indeks apoptosis yang bermakna antara kelompok K dan P1 ($p<0,001$); K dan P2 ($p=0,004$), dan K dan P3 ($p=0,005$). P1 menunjukkan media indeks apoptosis terendah. Ekspresi TNF- α dan indeks apoptosis memiliki hubungan yang signifikan ($p<0,05$).

Kesimpulan: Perbedaan ekspresi TNF- α dan indeks apoptosis ditemukan lebih rendah pada tikus Sprague Dawley kelompok kombinasi UDCA-glutathione daripada UDCA dosis tunggal. Antara TNF- α dan indeks apoptosis, terdapat hubungan positif sedang.

Kata kunci: kolestasis, TNF- α , UDCA, glutathione, apoptosis

ABSTRACT

Background: Cholestasis is a disorder of the formation or flow of bile. Liver cirrhosis causes portal hypertension that can lead splenomegaly and cell apoptosis. TNF- α is the most potent apoptosis inducer. UDCA is a choleric, immunomodulatory, and protective agent of the hepatobiliary system. GSH enhances endothelial response and prevents liver fibrosis.

Objective: To analyze the effect of combination glutathione-ursodeoxycholic acid on splenic TNF- α expression and splenic apoptosis index in *Sprague Dawley* rats ligated to their common bile ducts.

Methods: This research was a true experimental with Post Tests Only Control Group Design. Subjects were *Sprague Dawley* rats which randomly divided into four groups. Cholestasis was obtained by ligation of the common bile duct through a laparotomy. On day 22, termination and spleen sample was taken for anatomical pathology examination.

Results: There were differences in TNF- α expression between groups K and P3; P1 and P3, and P2 and P3 ($p=0.002$). The median expression of TNF- α was lowest at P3. There was a significant difference in the apoptotic index between groups K and P1 ($p<0.001$); K and P2 ($p=0.004$), and K and P3 ($p=0.005$). P1 shows the lowest apoptotic index medium. TNF- α expression and apoptotic index had a significant relationship ($p<0.05$).

Conclusion: The difference in TNF- α expression and apoptotic index was found lower in *Sprague Dawley* rats UDCA-glutathione combination group than single dose UDCA. Between TNF- α and the apoptotic index, there is a moderate positive relation.

Keywords: cholestasis, TNF- α , UDCA, glutathione, apoptosis