

**EKSPRESI PROTEIN BCL2 DAN KEJADIAN APOPTOSIS SEL EPITEL LAPISAN
PARIETAL KAPSULA BOWMAN GINJAL TIKUS (*Rattus norvegicus Wistar*) JANTAN
PADA PEMAKAIAN NEFROPROTEKTIF GLUTAMIN YANG TERPAPAR
NEFROTOKSIK MODALITAS KEMOTERAPI CISPLATIN
(Penelitian Eksperimental Laboratorik)**

ABSTRAK

Cisplatin atau (SP-4-2) -iamminedichloridoplatinum (II) salah satu turunan platinum yang paling potensial dan banyak digunakan untuk pengobatan berbagai kanker padat seperti testis, ovarium, kepala dan leher, kandung kemih, paru, kanker serviks, melanoma, limfoma. Mekanisme proapoptosis yang dihasilkan oleh cisplatin cukup efektif dalam mengobati sel neoplastik. Terapi cisplatin bukanlah *targeted therapy* namun *non targeted therapy* , sehingga efeknya bisa pada sel-sel normal seperti pada sel epitel lapisan parietal kapsula Bowman. Sel kanker yang menjadi target cisplatin akan mengalami apoptosis melalui mekanisme penghambatan regulator anti apotposis, sehingga sel-sel kanker akan segera memulai apoptosis. Peningkatan apoptosis akan menyebabkan penurunan ekspresi protein Bcl2.

Tujuan penelitian ini membuktikan pengaruh glutamin intravena terhadap ekspresi protein Bcl 2 pada kejadian apoptosis pada sel lapisan parietal kapsula Bowman tikus jantan yang terpapar cisplatin. Penelitian ini menggunakan desain eksperimental dengan "The Randomized Post Test Only Control Group Design. Sebanyak tiga puluh tikus jantan dibagi menjadi 3 kelompok secara acak (randomized) yaitu, kelompok P0 sebagai kontrol hanya diberi diet standar, kelompok P1 diberikan injeksi intraperitoneal dosis tunggal cisplatin 20mg /kg pada hari ke 7, dan kelompok P2 diberikan injeksi intravena glutamin 100mg / KgBW pada hari 1-7 dan diberikan injeksi intraperitoneal dosis tunggal cisplatin 20mg /kg pada hari ke 7.

Hasil penelitian ini menunjukkan bahwa tidak terdapat perubahan efek yang signifikan pada kelompok P1 dan P2 dengan nilai p 0.444 pada Bcl 2 melalui uji *Mann Whitney* dan p 0.582 pada apoptosis dengan uji *LSD*. Maka pemberian glutamin intravena tidak memiliki efek yang signifikan pada ekspresi protein Bcl 2 dalam sel epitel lapisan parietal kapsula Bowman, dan apoptosis tikus jantan yang terpapar cisplatin.

Kata Kunci: glutamine, Bcl 2, apoptosis, cisplatin

**EXPRESSION OF BCL2 PROTEIN AND APOPTOTIC CELLS OF PARIETAL LAYER
OF BOWMAN CAPSULE AFTER GLUTAMINE ADMINISTRATION AS
NEPHROPROTECTIVE AGENT AGAINST CISPLATIN CHEMOTHERAPY IN
MALE RATS (*Rattus norvegicus* Wistar)
(Laboratory Experimental Research)**

ABSTRACT

Cisplatin or (SP-4-2) -diamminedichloridoplatinum (II) is one of the most potential platinum derivatives and is widely used for the treatment of various solid cancers such as testes, ovaries, head and neck, bladder, lung, cervical cancer, melanoma, lymphoma. The mechanism of proapoptosis produced by cisplatin is quite effective in treating neoplastic cells. Cisplatin therapy is not targeted therapy but non-targeted therapy, so the effect can be on normal cells such as the epithelial cells in the parietal layer of Bowman's capsule. Cancer cells that are targeted by cisplatin will undergo apoptosis through the inhibitory mechanism of the anti-apoptosis regulator so that cancer cells will immediately start apoptosis. Increased apoptosis will cause a decrease in Bcl2 protein expression.

The purpose of this study is to prove the effect of intravenous glutamine on the expression of Bcl 2 protein in the incidence of apoptosis in the parietal layer cells of the Bowman capsule of male rats exposed to cisplatin. This study used an experimental design with "The Randomized Post Test Only Control Group Design. Thirty male rats were divided into 3 randomized groups, ie, the P0 group as control was only given a standard diet, the P1 group was given an intraperitoneal injection of a single dose of 20 mg cisplatin. / kg on day 7, and P2 group was given an intravenous injection of glutamine 100mg / KgBW on days 1-7 and given a single dose of intraperitoneal injection of cisplatin 20mg / kg on day 7.

The results of this study indicate that there was no significant change in effect in the P1 and P2 groups with a p-value of 0.444 in Bcl 2 through the Mann Whitney test and p-value 0.582 in apoptosis with the LSD test. Thus intravenous glutamine administration did not have a significant effect on the expression of Bcl 2 protein in the parietal epithelial cells of the Bowman capsule, and apoptosis of male rats exposed to cisplatin.

Keyword : glutamine, Bcl 2, apoptosis, cisplatin