Efek Perasan Batang Brotowali (*Tinaspora crispa L. Miers*) terhadap Gambaran Histopatologik Ginjal Tikus Wistar (*Rattus norvegicus*) yang Diinduksi Streptozotocin (STZ)

Riyadi Dwi Prasetya
Fakultas Kedokteran Hewan, Universitas Gadjah Mada, Yogyakarta

INTISARI

Penelitian ini bertujuan untuk mengetahui efek perasan batang Brotowali terhadap gambaran histopatologik ginjal tikus Wistar akibat induksi streptozotocin (STZ). Hewan percobaan yang digunakan berjumlah 25 tikus strain Wistar dibagi menjadi 5 kelompok. Tikus Kelompok I, II, dan III di induksi dengan streptozotocin dengan dosis 40 mg/kg BB/ekor/IP, Kelompok IV tikus normal namun diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO, dan Kelompok V sebagai kontrol negatif. Kelompok I diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO, Kelompok II diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO dengan nekropsi rutin setiap 4 hari, Kelompok III kontrol positif diberi akuades 2 mL, Kelompok IV tikus normal yang diberi perasan batang Brotowali 18 mg/kg BB/ekor/hari/PO, Kelompok V kontrol negatif tikus normal diberi akuades 1 mL. Pada akhir penelitian (pada hari ke-24) semua tikus percobaan dieuthanasi, dinekropsi dan diambil organ ginjal untuk pemeriksaan histopatologik. Data histopatologik ginjal dijelaskan secara deskriptif.

Hasil yang diperoleh dari pengamatan gambaran histopatologik organ ginjal tikus percobaan Kelompok V (kontrol) tanpa diinduksi STZ dan tanpa diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO selama 24 hari tidak memperlihatkan gejala patologik pada kondisi fisik maupun pemeriksaan histologik organ ginjal. Tikus percobaan Kelompok III yang menderita diabetes melitus tanpa diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO selama 24 hari memperlihatkan perubahan gambaran histopatologik ginjal yaitu adanya degenerasi hidrofik, kariopiknosis, kariolisis, nekrosis tubulus, hemoragi, dan pelebaran kapsula Bowman. Tikus percobaan Kelompok IV yang normal dan diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO selama 24 hari memperlihatkan gambaran sedikit kurang baik pada histopatologik ginjal yaitu pelebaran lumen tubulus, degenerasi hidrofik, dan nekrosis. Tikus percobaan Kelompok I dan II yang menderita diabetes melitus dan diberi 2 mL perasan batang Brotowali 18 mg/200 g/BB/hari/PO selama 24 hari memperlihatkan proses perubahan yaitu terlihat struktur glomerulus dan tubulus yang lebih baik namun masih ada perubahan patologik seperti degenerasi hidrofik, kariolisis, karioreksis dan kariopiknosis.

Kata kunci: tikus, streptozotocin, diabetes melitus, Brotowali, histopatologik, ginjal

THE EFFECTS OF SQUEEZED BROTOWALI'S (*Tinaspora crispa L. Miers)* STEM FOR KIDNEY HISTOPATOLOGIC OVERVIEW OF WISTAR RATS (*Rattus norvegicus*) INDUCED BY STREPTOZOTOCIN (STZ)

Riyadi Dwi Prasetya
Faculty of Veterinary Medicine, Gadjah Mada University, Yogyakarta

ABSTRACT

The aim of the research was to evaluate the effect of Brotowali's stem squeezed on streptozotocin (STZ)-induced diabetic rats model. A total of twenty five Wistar rats divided into five Groups. Group I, II, and III were firstly induced by STZ with the dosage of 40 mg/kg BW/rat/IP. Next, the Group I were treated with 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO, Group II were also treated with 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO but each four days one rat was killed for histopathological preparation, Group III which is the positive diabetic were treated with 2 ml of aquadest, while Group IV were not diabetic (normal) but still treated with 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO, and Group V (control) also were not diabetic but treated with 1 mL aquadest. Rats Group I, III, IV, and V were killed at the end of the research (24^{th} day), the kidney was taken for histology preparation and the kidney were stained with hematoxylin eosin (HE). The histopathologic data of the kidney was explained descriptively.

The result showed that histopatologic view of the rat's kidney of the Group V (control) without giving 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO for 24 days and is not seen any pathologic signs at physical condition and histological examination of the kidney. The Group III suffered from diabetes mellitus without therapy of 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO for 24 days seen that there were hydrophic degeneration, kariopicnosis, kariolysis, tubulus necrosis, haemorrhage and the expand of Bowman capsule. The Group IV was normal and was given 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO for 24 days, it was seen that there were expand of lumen tubules, hydrophic degeneration and necrosis. The Group I and II suffered from diabetes mellitus and were given of therapy of 2 mL Brotowali's stem squeezed 18 mg/200 g BW/rat/day/PO for 24 days and was seen that there was healing process which the glomerulus structure and tubules was in good condition, but there were pathologic changes such as hydrophic degeneration, kariolysis, karyorrhexis and kariopicnosis.

Keywords: rat, streptozotocin, diabetes mellitus, Brotowali, histopathology, kidney