

ABSTRAK

STUDI GAMBARAN FIBRINOGEN DAN LEUKOSIT TIKUS WISTAR PADA JAM 0 – 96 YANG DIINDUKSI STREPTOZOTOCIN

Yayik Nur Hijrati
14/367661/KH/8179

Diabetes menjadi masalah medis utama karena kejadian tiap tahun semakin meningkat. Hewan model seperti tikus telah dikembangkan untuk mempelajari diabetes. Induksi diabetes dengan streptozotocin adalah prosedur yang paling banyak digunakan. Induksi streptozotocin dapat memunculkan inflamasi yang berefek pada gambaran fibrinogen dan leukosit. Diperlukannya studi mengenai pengaruh induksi streptozotocin (yang menyebabkan diabetes dengan meningkatkan kadar gula darah) pada tikus terhadap gambaran fibrinogen dan leukosit serta korelasinya.

Sebanyak 20 tikus Wistar dibagi menjadi dua kelompok sama besar yaitu perlakuan dan kontrol. Tikus perlakuan dibuat diabetes dengan induksi streptozotocin dosis 40 mg/kg bb secara intraperitoneal dan tikus kontrol tidak diinduksi. Sampel darah kedua kelompok diambil pada jam ke-0, 6, 12, 24, 36, 48, 60, 72, 84 dan 96 melalui sinus retro orbitalis untuk pemeriksaan kadar fibrinogen, jumlah total leukosit dan diferensial leukosit. Data kemudian diolah menggunakan analisa SPSS *correlate bivariate* dan *compare mean - independent samples T test*.

Hasil pemeriksaan darah jam ke-0, 6, 12, 24, 36, 48, 60, 72, 84, 96 kelompok perlakuan berturut-turut berupa kadar fibrinogen adalah 570±48; 580±289; 600±326; 960±386; 1.100±81; 1.120±661; 1.190±338; 1.470±48; 1.610±87; 1.810±87 (mg/dL), jumlah total leukosit adalah 3.127±47; 4.061±73; 3.596±70; 3.596±70; 5.122±27; 3.296±56; 4.202±62; 8.455±54; 7.717±34; 6.159±54; 11.444±48 (sel/μL) dan diferensial leukosit sel neutrofil adalah 1.735±35; 1.819±69; 1.274±76; 1.457±30; 1.558±61; 1.886±65; 2.264±57; 1.936±0; 2.194±51; 2.210±47 (sel/μL), sel eosinofil serta sel basofil tidak ditemukan (0 sel/μL), monosit adalah 174±4; 195±6; 545±15; 316±4; 392±3; 732±4; 852±8; 924±4; 1.845±5; 1.988±4 (sel/μL), limfosit adalah 1.217±25; 2.046±14; 1.776±10; 3.348±28; 1.346±27; 1.584±13; 5.337±12; 4.856±32; 2.118±13; 7.245±14 (sel/μL). Hasil analisa statistik diketahui bahwa induksi streptozotocin meningkatkan kadar fibrinogen, jumlah total leukosit, jumlah monosit dan jumlah limfosit secara signifikan ($p < 0,05/2$). Induksi streptozotocin mampu meningkatkan kadar gula darah yang berkorelasi sangat kuat dengan kadar fibrinogen dan berkorelasi kuat dengan jumlah total leukosit. Disimpulkan bahwa induksi streptozotocin mampu mempengaruhi gambaran fibrinogen dan sebagian besar gambaran leukosit.

Kata kunci: streptozotocin, diabetes, fibrinogen, leukosit, diferensial leukosit

ABSTRACT

**STUDY OF FIBRINOGEN AND LEUKOCYTE ON WISTAR RATS AT
0 – 96 HOURS INDUCED BY STREPTOZOTOCIN**

Yayik Nur Hijrati
14/367661/KH/8179

Diabetes becomes a major medical problem because of the high incidence. Animal models such as rats have been developed to study diabetes. The induction of diabetes with streptozotocin is the most widely used procedure. Streptozotocin induction can lead to inflammation that increases fibrinogens and leukocytes. This research is aimed to explore the effect of streptozotocin induction (cause diabetes by increased blood sugar levels) in rat on fibrinogen and leukocyte profiles and the correlations.

A total of 20 Wistar rats were divided into two equally large groups of treatments and controls. Rats from treatments group were induced with streptozotocin dose 40 mg/kg intraperitoneally and Rats from control group were not induced. Blood samples of both groups were taken at hours 0, 6th, 12th, 24th, 36th, 48th, 60th, 72th, 84th and 96th through retro orbital sinus for examination of fibrinogen levels, total of leukocyte and leukocyte differential. The data is then processed using SPSS correlate bivariate and compare mean - independent samples T test.

The results of blood tests at hours 0, 6th, 12th, 24th, 36th, 48th, 60th, 72th, 84th, 96th from treatment group of fibrinogen levels consecutively were 570±48; 580±289; 600±326; 960±386; 1,100±81; 1,120±661; 1,190±338; 1,470±48; 1,610±87; 1,810±87 (mg/dL), the total number of leukocytes were 3,127±47; 4,061±73; 3,596±70; 3,596±70; 5,122±27; 3,296±56; 4,202±62; 8,455±54; 7,717±34; 6,159±54; 11,444±48 (cell/μL), differential neutrophil cell leukocytes were 1,735±35; 1,819±69; 1,274±76; 1,457±30; 1,558±61; 1,886±65; 2,264±57; 1,936±0; 2,194±51; 2,210±47 (cells/μL), eosinophil cells and basophile cells were not found (0 cell/μL), monocytes were 174±4; 195±6; 545±15; 316±4; 392±3; 732±4; 852±8; 924±4; 1,845±5; 1,988±4 (cell/μL), lymphocytes were 1,217±25; 2,046±14; 1,776±10; 3,348±28; 1,346±27; 1,584±13; 5,337±12; 4,856±32; 2,118±13; 7,245±14 (cell/μL). The results of the statistic analysis revealed that diabetes induction with streptozotocin of rats from treatment group increased the levels of fibrinogen, total leukocyte count, monocyte count and lymphocyte count significantly ($p < 0.05/2$). The administration of streptozotocin was able to increase blood sugar level that correlated very strongly with fibrinogen levels and strongly correlated with the total number of leukocytes. It was concluded that the induction of streptozotocin was able to influence the fibrinogen level and most of the leukocyte profiles.

Keywords: streptozotocin, diabetes, fibrinogen, leukocyte, differential leukocyte