

ABSTRAK

PERUBAHAN *CREATINE KINASE*, *ASPARTATE AMINOTRANSFERASE*, DAN *ALANINE AMINOTRANSFERASE* TIKUS YANG MENGALAMI TRAUMA KOMPRESI MEDULA SPINALIS

Afnan Haris Fahrizal
NIM. 21/482165/KH/11003

Cedera medula spinalis (SCI) dapat menyebabkan gangguan sistem saraf pusat dan disfungsi organ, termasuk otot dan hati. Penelitian mengenai hubungan cedera medula spinalis dengan perubahan kadar enzim seperti *Creatine kinase* (CK), *Aspartate aminotransferase* (AST), dan *Alanine aminotransferase* (ALT) masih terbatas, terutama di Indonesia. Penelitian ini bertujuan untuk mengetahui perubahan kadar CK, AST, dan ALT pada tikus Wistar betina yang mengalami trauma kompresi medula spinalis. Penelitian dilakukan secara eksperimental terhadap enam ekor tikus yang dibagi menjadi dua kelompok: kelompok kontrol (KK) tanpa perlakuan dan kelompok perlakuan (KP) yang diberi trauma kompresi medula spinalis melalui prosedur laminektomi dan penjepitan medula spinalis torakalis 4–5 selama 10 detik. Sampel darah diambil pada hari ke-14 melalui pleksus orbitalis dan diuji di laboratorium untuk mengetahui kadar enzim tersebut. Hasil menunjukkan peningkatan rerata kadar CK pada kelompok perlakuan dibanding kelompok kontrol, namun secara statistik tidak signifikan ($p > 0,05$). Sebaliknya, kadar AST dan ALT meningkat secara signifikan pada kelompok perlakuan dibanding kontrol ($p < 0,05$), yang menunjukkan bahwa cedera medula spinalis menyebabkan kerusakan atau disfungsi pada organ hati dan otot. Kesimpulan dari penelitian ini adalah bahwa trauma kompresi medula spinalis menyebabkan peningkatan kadar AST dan ALT, sedangkan kadar CK tidak ada perubahan.

Kata kunci: ALT, AST, CK, medula spinalis, trauma kompresi.

ABSTRACT

CHANGES IN CREATINE KINASE, ASPARTATE AMINOTRANSFERASE, AND ALANINE AMINOTRANSFERASE IN RATS EXPERIENCING SPINAL CORD COMPRESSION TRAUMA

Afnan Haris Fahrizal
NIM. 21/482165/KH/11003

Spinal cord injury (SCI) can lead to central nervous system disruption and organ dysfunction, including muscle and liver damage. Research on the association between SCI and changes in enzyme levels such as creatine kinase (CK), aspartate aminotransferase (AST), and alanine aminotransferase (ALT) remains limited, particularly in Indonesia. This study aimed to investigate changes in CK, AST, and ALT levels in female Wistar rats subjected to spinal cord compression trauma. An experimental study was conducted using six rats divided into two groups: a control group (KK) without treatment and a treatment group (KP) subjected to spinal cord compression trauma through laminectomy and clamping of the thoracic spinal cord segments T4–T5 for 10 seconds. Blood samples were collected on day 14 via the orbital plexus and analyzed in the laboratory to measure enzyme levels. The results showed an increase in the mean CK level in the treatment group compared to the control group; however, the difference was not statistically significant ($p > 0.05$). In contrast, AST and ALT levels were significantly higher in the treatment group than in the control group ($p < 0.05$), indicating that SCI leads to liver and muscle damage or dysfunction. In conclusion, spinal cord compression trauma caused an increase in AST and ALT levels, while CK levels showed no statistically significant change.

Keywords: ALT, AST, CK, compression trauma, spinal cord