Perubahan histopatologi pada jaringan otot sebagai akibat iskemik reperfusi (Studi pada otot tungkai bawah kelinci yang diberikan iskemik prekondisi dan hipotermi) = Histopathogy evaluation on muscle after ischemic reperfusion injury (Study on muscle of rabbit`s lower extremity which given ischemic precondition and hypothermia)

Panji Utomo, author

Abstrak

Latar Belakang: Iskemia yang terjadi pada lokasi di tubuh mengakibatkan cedera otot reversible sampai ireversibel. Tindakan reperfusi ternyata dapat memperburuk keadaan yang disebabkan oleh kondisi iskemik. Beberapa penelitian terdahulu mencoba mencari teknik proteksi untuk mengurangi efek iskemik reperfusi diantaranya teknik iskemik prekondisi dan teknik hipotermi.
Metode: Dilakukan penelitian eksperimental pada kelinci New Zealand White (n=18) dengan satu kelompok kontrol (iskemia) dan dua kelompok perlakuan (preconditioning dan hipotermia). Dilakukan ligasi a. iliaka komunis selama 4 jam, hipotermia sedang (28oC), dan iskemik prekondisi pada masing-masing kelompok. Kemudian kelinci dibiarkan hidup selama 8 jam. Sampel jaringan otot femoralis di ambil untuk pemeriksaan derajat kerusakan otot secara histopatologi.
Hasil: Terdapat penurunan secara histopatologi derajat kerusakan otot yang di berikan perlakuan IPC dan perlakuan Hipotermi terhadap kelompok control. Analisis statistik tampak perbedaan bermakna pada sebagian parameter.
Kesimpulan: Iskemik Prekondisi dan Hipotermi memberikan efek protektif pada otot dari akibat iskemik reperfusi tungkai bawah akut.
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Introduction: Ischemia in certain location in the body could give muscle injury with certain severity from reversible to irreversible. Reperfusion turns out to give more injury than ischemic alone. Previous research try to find the best protective technic to reduce I/R injury including ischemic precondition and hypothermia technic.
Method: This prospective, randomized, controlled, experimental animal study was performed in a university-based animal research facility with 18 New Zealand White Rabbit. The rabbits were randomized (n=6 per group) into three groups: I/R group (4 hours of hind limb ischemia and 8 hours of reperfusion), IPC group (three cycles of 5 minutes of ischemia/5 minutes of reperfusion immediately preceding I/R), and hypothermia (28oC) together with 4 hours of hind limb ischemia and 8 hours of reperfusion. Muscle tissue were examined based for their histopathological changes.
Result: The histopathologic muscle damage score is decreased both in ischemic precondition group and hypothermia group.Although both groups show improvement in histological finding, this finding was statistically significant in few parameters.
Conclusion: Ischemic preconditioning and hypothermia have shown protective effect for muscle from ischemic reperfusion injury induced by lower limb ischemia.