Glycerol에 의해 유발된 횡문근 융해증 백서에서 Erythropoietin의 치료 및 예방적 효과

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Erythropoietin affect Prevention and Recovery after Glycerol Induced Rhabdomyolysis in the Rat

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Purpose : Erythropoietin(EPO) has been shown to exert cytoprotective effects on erythroid progenitor cells as well as various non erythroid cells. Experimental studies have demonstrated the renoprotective effects of EPO in various acute and chronic renal injury models. Therefore, the aim of the present study was to investigate the preventive and therapeutic effects of EPO on myoglobinuric ARF induced by IM hypertonic glycerol injection.

Methods : Sprague- Dawley rats were divided into six groups. group 1 served as control; group 2 and 6 was given 50% glycerol (10 mL/kg, intramuscularly); group 2 sacrified after 1day, group 6 sacrified after 7days. groups 3, 4 and 5 were given glycerol plus erythropoietin (1,000 IU/kg and 5,000 IU/kg i.p.); group 3 received erythropoietin 24hrs prior to the glycerol injection; group 4 and 5 received erythropoietin (1,000IU/kg vs 5,000 IU/kg) for 1day to 7days after the glycerol injection. Blood samples and kidney tissues were taken from anaesthetised rats 1,3,5 and 7 days after.

Results : In group 5 rats, creatinine improved significantly (p=0.021). but In group 4 rats, creatinine does not get the difference compared with group 2 (p=0.092). In group 3 creatinine level increased significantly compared with group 2 regardless the erythropoietin dosage (p=0.008, 0.027). In the group of preventive treatment with EPO, there were moderate to severe tubular necrosis and tubular cast formation regardless of dose of EPO. In the groups EPO treatment post- ARF, there were decreasing tubular necrosis and cast formation according to duration. Day 5 was the most critical period of EPO treatment. Dosage of EPO was not correlated with EPO treatment effectiveness in post- ARF EPO treatment group.

Conclusion : These results indicate that EPO improve the recovery after glycerol induced rhabdomyolysis, but dosage of EPO may be related. And erythropoietin does not prevent the glycerol induced rhabdomyolysis.

Key Words : 횡문근융해증, 회복,예방
Rhabdomyolysis, Erythropoietin, Recovery, Prevention