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Possible Protective Role of Angiotensin II Antagonist on Bacterial Endotoxin Induced Acute Lung Injury: Morphological Study on Adult Male Albino Rat

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Abstract : Background: Acute lung injury (ALI) is one of the major challenges in intensive care medicine. The most common extrapulmonary cause of ALI is sepsis, accounting more than 30% of the cases in humans. Lipopolysaccharide (LPS) has gained wide acceptance as a clinically relevant model of ALI. Lipopolysaccharide is a glycoprotein forming the major constituent of bacterial endotoxin. Losartan is angiotensin II type 1 (AT1) receptor antagonists. It is widely used for management of hypertension. It was recently suggested that losartan protects against septic ALI. It would thereby prevent LPS-induced ALI. Aim of the work and design of the experiment: This work investigated the injurious effect of lipopolysaccharide (LPS) and ALI on adult male albino rat at 24 hours and 14 days of LPS administration and the possible protective role of losartan pretreatment. LPS has deteriorated animal survival and behavior. It increased lung weight and induced lung histological damage. These changes could be much reduced by the losartan pretreatment. Conclusion: Administration of losartan before LPS could largely reduce these LPS/ ALI induced short and long term alterations. It could be recommended that patients susceptible to developing ALI, as in ICU, should receive a protective dose of angitensin II type 1 (AT1) receptor blocker as losartan.

Keywords : acute lung injury (ALI), lipopolysaccharide (LPS), losartan
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