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Protective Effect of Antidepressant Drug Mirtazapine Against Bleomycine Induced Nephrotoxicity in Rats

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SUMMARY. Nephrotoxicity is defined as adverse events caused by substances that result in renal dysfunctioning. Bleomycin, though used to treat head and neck and other forms of cancer, is one such substance that is attributable to nephrotoxicity. Mertazapine is an often used antidepressant and the aim of this study was to examine the effect of mertazapine upon bleomycine. As such, the treatment effect of the parenchyma of the kidney tissue of rats was examined. Various groups were used: Group I (control group), group II (animals treated with bleomycin), group III (animals treated with bleomycin and 15 mg mirtazapine) 15 mg (group III), group IV (animals treated with bleomycin and 30 mg mirtazapine). Results revealed that the histological structure of kidney, treated with bleomycin and 15 mg mertazapine 15 (group III) showed some recovery of the kidney parenchyma when compare with the bleomycin treated group II. Histological structure of kidney treated with bleomycin and 30 mg mertazapine 30 (group IV) showed more recovery the parenchyma of the kidney tissue when compared with the bleomycin treated group II. The results points to more efficacy of using mertazapine treatment alone or in a higher proportion when combined with bleomycine in the recovery of the parenchyma of the kidney tissue that can be attributed to its protective antidepressant effect.

RESUMEN. La nefrotoxicidad se define como eventos adversos causados por sustancias que resultan en disfunción renal. La bleomicina, aunque se usa para tratar la cabeza y el cuello y otras formas de cáncer, es una de esas sustancias atribuible a la nefrotoxicidad. La mertazapina es un antidepresivo de uso frecuente y el objetivo de este estudio fue examinar el efecto de la mertazapina sobre la bleomicina. Para ello se examinó el efecto del tratamiento del parénquima del tejido renal de ratas. Se utilizaron varios grupos: Grupo I (grupo control), grupo II (animales tratados con bleomicina), grupo III (animales tratados con bleomicina y 15 mg de mirtazapina) 15 mg (grupo III), grupo IV (animales tratados con bleomicina y 30 mg mirtazapina). Los resultados revelaron que la estructura histológica del riñón tratado con bleomicina y 15 mg de mertazapina 15 (grupo III) mostró cierta recuperación del parénquima renal en comparación con el grupo II tratado con bleomicina. La estructura histológica del riñón tratado con bleomicina y 30 mg de mertazapina 30 (grupo IV) mostró una mayor recuperación del parénquima del tejido renal en comparación con el grupo II tratado con bleomicina. Los resultados apuntan a una mayor eficacia del uso del tratamiento con mertazapina sola o en mayor proporción cuando se combina con bleomicina en la recuperación del parénquima del tejido renal que puede atribuirse a su efecto antidepresivo protector.

KEY WORDS: bleomycine induced nephrotoxicity, mirtazapine, protective effect, rats

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