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The Effect of Anakinra on Paclitaxel Induced Auditory Nerve Damage in Rats

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SUMMARY. **In this study, we have examined the protective and proinflammatory effects of anakinra against paclitaxel-associated oxidative auditory nerve damage induced by paclitaxel in rats. Experimental animals were allocated into three groups: Paclitaxel administered controls, paclitaxel + anakinra administered group, and untreated health controls. At the end of this period, animals were sacrificed by high dose thiopental (50 mg/kg) anesthesia and auditory nerves were removed. Then, malondialdehyde, total glutathione, Interleukin-1β and nuclear factor kappa-B levels were measured in the auditory nerve tissue. Our biochemical test results showed that paclitaxel significantly increased the amount of malondialdehyde in auditory nerve tissue compared to anakinra and healthy group ($P < 0.0001$), whereas total glutathione level decreased. In addition, paclitaxel was found to increase interleukin-1β and nuclear factor kappa-B significantly compared to anakinra and healthy group ($P < 0.0001$). It was concluded that anakinra is effective in suppressing paclitaxel related oxidative stress and proinflammatory events in auditory nerve tissue.**

RESUMEN. En este estudio, hemos examinado los efectos protectores y proinflamatorios de anakinra contra el daño al nervio auditivo oxidativo asociado a paclitaxel inducido por paclitaxel en ratas. Los animales experimentales se dividieron en tres grupos: control administrado con paclitaxel, grupo administrado con paclitaxel + anakinra y controles sanitarios no tratados. Al final de este período, los animales se sacrificaron con anestesia tiopental en dosis altas (50 mg/kg) y se extrajeron los nervios auditivos. Luego, se midieron los niveles de malondialdehído, glutatión total, interleucina-1β y factor nuclear kappa-B en el tejido nervioso auditivo. Los resultados de nuestra prueba bioquímica mostraron que paclitaxel aumentó significativamente la cantidad de malondialdehído en el tejido nervioso auditivo en comparación con anakinra y el grupo sano ($P < 0{,}0001$), mientras que el nivel de glutatión total disminuyó. Además, se encontró que paclitaxel aumenta la interleucina-1β y el factor nuclear kappa-B significativamente en comparación con anakinra y el grupo sano ($P < 0{,}0001$). Se concluyó que anakinra es eficaz para suprimir el estrés oxidativo relacionado con paclitaxel y los eventos proinflamatorios en el tejido nervioso auditivo.

KEY WORDS: anakinra, auditory nerve, damage, paclitaxel, rats.

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