

## The Effect of Cerebrolysin on Ischemia Reperfusion-Induced Oxidative and Inflammatory Ovarian Damage in Rats

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**SUMMARY.** Ovarian ischemia-reperfusion (I/R) injury develops due to oxidative stress and inflammation that occurs when tissue is deprived of oxygen. Ovarian I/R damage also causes infertility. The aim of this study is to see the effect of ovarian I/R damage on reproductive functions and to determine the protection of antioxidant and anti-inflammatory cerebrolysin in possible damage. Albino Wistar-type female rats were divided into sham operation (SG), ischemia-reperfusion (IR) and cerebrolysin+ischemia-reperfusion (CIR) groups. After I/R application with cerebrolysin, the ovaries of six animals from each group were taken and biochemical and histopathological examinations were performed. Six animals from each remaining group were left to breed. Our test results showed that cerebrolysin decreased I/R-related oxidant, proinflammatory cytokine and tissue damage and increased antioxidant levels. In addition, cerebrolysin significantly inhibited the delay of the maternity period. These findings indicate that cerebrolysin may be helpful in the treatment of I/R-related ovarian damage and infertility.

**RESUMEN.** La lesión por isquemia-reperfusión (I/R) ovárica se desarrolla debido al estrés oxidativo y la inflamación que se produce cuando el tejido se ve privado de oxígeno. El daño por I/R ovárico también causa infertilidad. El objetivo de este estudio es ver el efecto del daño I/R ovárico en las funciones reproductivas y determinar la protección de la cerebrolisina antioxidante y antiinflamatoria en un posible daño. Las ratas hembra tipo Albino Wistar se dividieron en grupos de operación simulada (SG), isquemia-reperfusión (IR) y cerebrolisina+isquemia-reperfusión (CIR). Después de la aplicación de I/R con cerebrolisina, se tomaron los ovarios de seis animales de cada grupo y se realizaron exámenes bioquímicos e histopatológicos. Se dejaron reproducir seis animales de cada grupo restante. Los resultados de nuestras pruebas mostraron que la cerebrolisina disminuyó el daño tisular y las citocinas proinflamatorias y oxidantes relacionadas con I/R y aumentó los niveles de antioxidantes. Además, la cerebrolisina inhibió significativamente el retraso del período de maternidad. Estos hallazgos indican que la cerebrolisina puede ser útil en el tratamiento del daño ovárico relacionado con I/R y la infertilidad.

**KEY WORDS:** cerebrolysin, infertility, ischemia-reperfusion, ovarian damage, rat.

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