

Anti-inflammatory Activity of Local Anaesthetic Procaine Clubbed with 1,3,5-Triazine in Lipopolysaccharide-treated RAW264.7 Macrophages for Possible Benefit in Rheumatoid Arthritis

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SUMMARY. More than a million people around the world live with rheumatoid arthritis, proving that this condition is still a major public health issue. Their standard of living and general happiness were severely diminished as a result. Since procaine-1,3,5-triazine (PT) molecules have been shown to have anti-inflammatory properties, this study set out to determine whether or not they would be effective in the treatment of rheumatoid arthritis. We have created an in-vitro model for the investigation using LPS-stimulated RAW 264.7 cells. An investigation was conducted to determine how the molecule affected the generation of NO and PGE2 in LPS-stimulated RAW 264.7 cells, both of which are important biomarkers for RA. It has been postulated that the PT, in a concentration-dependent way, greatly reduced NO generation and PGE2 levels. Improved levels of MDA, SOD, and GPx, as well as TNF- α , IL-1 β , and IL-6, demonstrated a decrease in oxidative stress and inflammation in the PT-treated group. In contrast to the LPS-treated control group, the COX-2 level was also observed to be significantly reduced in western blot analysis. Our results showed that PT is an effective treatment for RA because of its anti-inflammatory and antioxidant effects.

RESUMEN. Más de un millón de personas en todo el mundo viven con artritis reumatoide, lo que demuestra que esta afección sigue siendo un importante problema de salud pública. Como resultado, su nivel de vida y su felicidad general disminuyeron gravemente. Dado que se ha demostrado que las moléculas de procaína-1,3,5-triazina (PT) tienen propiedades antiinflamatorias, este estudio se propuso determinar si serían efectivas o no en el tratamiento de la artritis reumatoide. Hemos creado un modelo in vitro para la investigación utilizando células RAW 264.7 estimuladas con LPS. Se llevó a cabo una investigación para determinar cómo la molécula afectó la generación de NO y PGE2 en células RAW 264.7 estimuladas con LPS, los cuales son biomarcadores importantes para la AR. Se ha postulado que el PT, de forma dependiente de la concentración, redujo en gran medida la generación de NO y los niveles de PGE2. Los niveles mejorados de MDA, SOD y GPx, así como de TNF- α , IL-1 β e IL-6, demostraron una disminución del estrés oxidativo y la inflamación en el grupo tratado con PT. A diferencia del grupo de control tratado con LPS, también se observó que el nivel de COX-2 se redujo significativamente en el análisis de transferencia Western. Nuestros resultados mostraron que la PT es un tratamiento eficaz para la AR debido a sus efectos antiinflamatorios y antioxidantes.

KEY WORDS: arthritis, inflammation, PGE2, procaine, RAW264.7 cells, 1,3,5-triazine.

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