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The effects of **genistein**, a tyrosine kinase inhibitor on acute and chronic inflammation in diabetic mice

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Abstract

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The effects of tyrosine kinases on acute and chronic inflammation during diabetes are not fully determined. Therefore, the present study focuses on the effects of **genistein**, a tyrosine kinase inhibitor, on acute and chronic inflammation in diabetic mice. The mice either received normal saline (control, 0.1 ml, i.p., n=144) or streptozotocin (diabetic, STZ, 200 mg kg⁻¹, i.p., n=144). A week after injection of saline or STZ acute and chronic inflammation was induced by injecting carrageenan and implanting 2 cotton pellets. Before injection carrageenan or 5 day after implantation, 9 mice from each group (control or diabetic) received **genistein** (10 mg kg⁻¹, i.p.), indomethacin (2 mg kg⁻¹, i.p.) or L-NAME (0.1 mg kg⁻¹, i.p.). Paw edema and the weight of cotton pellets were significantly higher in diabetic mice. Pretreatment with either indomethacin or L-NAME significantly reduced the acute and chronic inflammation in the diabetic group. **Genistein** reduced chronic inflammation significantly. These results suggest that activation of tyrosine kinases as well as prostaglandins and nitric oxide pathways are involved in the increased chronic inflammatory responses observed in the diabetic animals.

Author keywords

Diabetes; **Genistein**; Inflammation; Mice; Streptozotocin; Tyrosine kinase

Indexed Keywords

EMTREE drug terms:carrageenan; **genistein**; indometacin; n(g) nitroarginine methyl ester; protein tyrosine kinase inhibitor; streptozocin

EMTREE medical terms: animal experiment; animal model; antiinflammatory activity; article; chronic inflammation; controlled study; cotton; drug effect; inflammation; male; mouse; nonhuman; paw edema; streptozocin diabetes

Chemicals and CAS Registry Numbers: carrageenan, 9000-07-1, 9049-05-2, 9061-82-9, 9064-57-7; **genistein**, 446-72-0; indometacin, 53-86-1, 74252-25-8, 7681-54-1; n(g) nitroarginine methyl ester, 50903-99-6; streptozocin, 18883-66-4

Manufacturers:Drug manufacturer: Sigma.

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