

New approach to comparing nsaid efficacy by long-term monitoring of experimental inflammation models

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Abstract

Experiments on inflammatory edema modeling by sub-plantar injection of carrageenan lambda (1 %) and formalin (2 %) showed substantial differences between the two models during long-term observation, including irreversible damage caused by formalin (at reversible carrageenan action) and high intensity of formalin edema (in contrast to carrageenan edema) in mice. We propose a new approach to evaluation of the so-called total inflammatory burden (experimental analog of disease outcome) by calculating the area under the inflammation intensity versus time curve. With the use of this approach, we showed the absence of any effect of conventional NSAIDs (naproxen, diclofenac, indomethacin) on the total inflammatory burden induced by carrageenan or formalin injections in mice and rat paw edema models. These results show the need for using new approaches in the search for potential anti-inflammatory agents.

Keywords

Carrageenan paw edema, Comprehensive evaluation of inflammatory response, Formalin, Mice, NSAID, Rats, Swelling