influence of a glycosaminoglycan polysulfate(arteparon) on lysosomal enzyme release from human polymorphonuclear leucocytes

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medical topics

The breakdown of proteoglycans and collagen fibres in human articular cartilage represents the molecular basis of joint functional disorders in rheumatic diseases. Destructive enzymes are released from lysosomes of polymorphonuclear leucocytes PMN and macrophages in rheumatoid arthritis. In osteoarthritis they arise probably from the cartilage itself. Attempts have been made to alter joint catabolism using pharmacologically active agents. One of these agents is glycosaminoglycan polysulfate (Arteparon®). Several clinical studies have reported beneficial effects of this drug in various forms of osteoarthritis. It has not been used so far in therapy of rheumatoid arthritis.

In order to study mechanism of action of this sulfated glycosaminoglycan, its influence upon the release

of lysosomal enzymes from PMN was investigated. Five different fractions of tested glycosaminoglycan were used, differing in molecular weight (from 3,000 to 17,000), chain length and number of "mean monomer units." Human PMN were incubated with zymosan particles (final concentration 0.2 ng of zymosan per leucocyte) opsonized with autologous serum. Preincubation with separate glycosaminoglycan fractions in concentrations 10^{-3} M and 10^{-4} M for 1h resulted in a significant activity decrease of released beta glucuronidase, neutral proteinase and myeloperoxidase. The concentration 10^{-5} M was less active. Determination of total enzyme activities were made after cells (either incubated with tested glycosaminoglycan fractions for 1h or without incubation) were lysed by six freeze-thaw cycles. Broken cells preparations were centrifuged and enzyme activities were then determined. Sulfate glycosaminoglycan fractions inhibited all total enzyme activities.

These results suggest direct inhibitory effect of tested drug on lysosomal enzymes based on an interaction between inhibitor and enzyme.

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整形外科 臨床指針

鈴木勝己(産業医科大学教授)編
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- 日常、遭遇する頻度の高い30疾患を選び、各疾患ごとに診断、検査、治療、予後と順序立てて具体的に記述し、あわせて症例も提示し、より確実な診療技術が身につくようまとめられている。
- 1疾患1執筆者の分担執筆で、第一線の臨床家が各々もともと得意とする疾患を担当した。修練中の研修医に、医学生の臨床講義に、また一般整形外科医の知識の整理にも役立つ。

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- 関節の基礎知識、免疫血清学、病理学から診断学、治療学、さらに社会的対策までも網羅した、今日におけるリウマチ学の成果を示す大著。初版後の進歩が著しい組織適合性抗原系とリウマチ性疾患とのかわり、川崎病、強直性脊椎骨増殖症と後縦靱帯骨化症を増補。またシェーグレン症候群も追加した。

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- 骨、関節、末梢神経の外傷を対象に、正常な関節、新鮮外傷、陈旧性外傷および非外傷性疾患、機能評価の項目にわけ、問診、視診、触診の順に臨床診断のポイントを述べた。
- 各章末には関節の機能的評価、判定基準を示し、治療成績判定の指標として役立つようにした。

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