〈原　著〉

ヒアルロン酸ナトリウムの物理化学的性質
——平均分子量，分子量分布および粘度と薬物吸収——

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Physico-Chemical Properties of Sodium Hyaluronate
——Relationships between physico-chemical properties of mean molecular weight, distribution of molecular weight, viscosity and the effect on drug absorption——

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Abstract

Intrinsic viscosity, mean molecular weight (MW), viscosity and molecular weight distribution (MWD) of sodium hyaluronates were measured as physico-chemical properties. The correlation between these properties and drug bioavailability was investigated. Five kinds of sodium hyaluronate solution with MW of 2.4×10^5, 1.0×10^6, 1.2×10^6, 1.8×10^6, 2.1×10^6 Da calculating by intrinsic viscosity were examined. The range of K_d value of these solutions was from 0.02 to 0.49. Viscosity range of these solutions was from 70 to 5.7×10^3 cP (20℃) using cone-plate viscometer. Optimal viscosity of the sodium hyaluronate solution was found to enhance rectal morphine absorption in rabbits. These results indicate that the selection of relevant viscosity of the sodium hyaluronate solution rather than MW and MWD may contribute to the improvement of affinity between drug and *in vivo* mucous membrane.

Key words: sodium hyaluronate, viscosity, molecular weight distribution, morphine rectal absorption, rabbit.