EFFECT OF AESCIN ON CAPILLARY FLUID EXCHANGE IN THE CAT HINDLIMB (Über den Einfluß von Aescin auf die Kapillarpermeabilität)

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The effect of the horse-chestnut saponin aescin was investigated in 30 cats anesthetized with chloralose (40 mg/kg oral). The hindlimb was blood-perfused at constant arterial flow and constant venous outflow pressure (W. Felix, J. Remien, K. Hällfritzsch, Pflüg. Arch. 329, 352-359, 1972). Recorded or calculated were: total volume of the hindlimb, venous volume, postcapillary resistance, effective capillary pressure (zero flow technique) and capillary filtration coefficient (CFC). The volume of the extremity, being isovolumetric before the application, was increased by i.v. and i.a. infusions of aescin (0,02-1 mg/kg/min) in all animals investigated. Under condition of venous congestion edema developped more rapidly. The response of the resistance vessels initially changed with the animal and the applied dose but was always constrictive in the course of time. The effective capillary pressure was decreased, CFC was enhanced. Post-capillary resistance and venous tone was not influenced. The effect of aescin on fluid movement into the interstitial space could not be due to hemodynamic influence on capillary pressure. There is much evidence that capillary permeability for proteins was enhanced.

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PHARMACOKINETIC STUDIES ON STRUCTURE-ACTIVITY RELATIONSHIP OF TREMOR-PRODUCING HARMALA AND IBOGA ALKALOIDS (Pharmakokinetische Untersuchung zur Struktur-Wirkungsbeziehung Tremor-erzeugender Harmala- und Iboga-alkaloide) G. Singbartl, G. Zetler and Lucie Schlosser

Differences in tremorigenic activity of substances given peripherally may be due to either different penetration into brain or different affinity to specific tremorigenic receptors. Therefore it was necessary to determine both the lipid solubility, and brain concentrations of the alkaloids at different intervals post injection. The alkaloids were extracted from brain in alkaline medium and their concentrations determined fluorometrically. In the kinetic experiments 10 mg/kg of the drugs were injected intravenously into mice within 10 sec, while the subcutaneous route was chosen in experiments testing tremorigenic potency. The moment of end of tremor was determined and the corresponding brain concentrations (TEC) of the alkaloids were interpolated from the time-concentration curves. The results indicate structure-activity relationships but no correlation between tremorigenic potency (after subcutaneous injection) and lipid solubility. However, a correlation exists between tremorigenic activity and TEC. Thus, tremor-producing activity was much more influenced by chemical structure than by lipid solubility. This points to specific receptors for indole compounds in tremorigenic brain structures.

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