The Influence of Aminoguanidine and Heparin on Shock in Guinea-Pigs

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In histamine shock in guinea-pigs, pretreatment with heparin produced a decrease in the plasma histamine concentration and reduced the death rate. Aminoguanidine abolished this heparin effect. Heparin pretreatment, however, did not alter the shock rate and did not modify the strength of bronchoconstriction (measured with the Konzett-Roessler method). Aminoguanidine alone had no influence on the plasma histamine levels, on the bronchoconstriction, and on the shock rate, but it increased the acute death rate to a certain degree.

In anaphylatoxin shock, too, heparin pretreatment decreased the plasma histamine levels, and aminoguanidine antagonized this heparin effect. But neither the shock rate nor the bronchoconstriction nor the death rate were altered by heparin pretreatment. Aminoguanidine alone had no effect.

In anaphylactic shock, neither heparin nor aminoguanidine did modify the plasma histamine levels, the bronchoconstriction, the shock rate or the death rate.

On account of these findings, it is probable that endogenously released histaminase acts only in the circulating blood. In histamine shock, the histaminase (released by heparin) attacks the injected histamine but some escapes and produces bronchoconstriction but no death. In anaphylatoxin and anaphylactic shock, histamine is released endogenously in the lung and is effective locally, being then responsible for death of the animal. With respect to the differences Schmutzler et al.

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ent behaviour of the histamine levels after heparin in anaphylactic and anaphylatoxin shock it has to be considered that in our experiments blood for histamine estimation was taken from the carotid artery, i.e. behind the lung. In anaphylatoxin shock there is, in contrast to anaphylactic shock, a prevailing participation of extra-pulmonary histamine which may be destroyed on the way to the lung by the histaminase.