

References

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The effect of ascorbic acid on anaphylactic shock in dogs

SIR,—Many controversial reports about the effect of ascorbic acid on anaphylactic shock in different species are found in the literature. Recently, Dawson & West (1965a) showed that large doses, given just before the antigen challenge, protect guinea-pigs or rats from anaphylactic shock. In another paper, Dawson & West (1965b) reported that the protective action of ascorbic acid followed a direct effect on the bronchial muscle. The effect of ascorbic acid on anaphylactic shock in dogs has now been investigated.

Twenty-two dogs, 6.5 to 11.5 kg, were sensitized with horse serum (6 ml subcutaneously 5 times at 3-day intervals). About 22 days later, they were anaesthetised with intravenous chloralose (110 mg/kg) and injected intravenously with 20 ml of horse serum. Blood pressure recordings were made from the right carotid artery with a mercury manometer. Four of the dogs had no pre-treatment and served as controls. The sudden and excessive fall in blood pressure with congestion in the liver occurred immediately after the challenge with antigen in these four animals. Groups of 3 of the other 18 dogs were injected intravenously with ascorbic acid (500 mg/kg) either immediately or at 5, 10, 15, 20 or 30 min before the antigen challenge. This dose of ascorbic acid had no effect on anaphylactic shock, the blood pressure in all animals falling from about 110 to about 30 mm Hg, and most of them (85%) dying within 1 hr of challenge. Blood samples taken before and after anaphylactic shock were assayed for their histamine contents (Csaba, Szilagyi, Damjanovich & Kover, 1963), but no change was found in the amount of histamine liberated in anaphylaxis (controls increased about 50-fold whereas ascorbic acid-treated animals showed mean increases of about 41-fold).

Thus, ascorbic acid given before the antigen challenge in dogs has no protective action against anaphylactic shock and does not influence histamine release. The shock organ in dogs is the liver and not the lung as in guinea-pigs. The inability of ascorbic acid to influence the reaction in the dog thus adds weight to the hypothesis that ascorbic acid directly inhibits the bronchospasm in guinea-pigs and does not act solely through the adrenal system as some workers [for example, Guirgis (1965)] have suggested.

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March 2, 1966

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