

EFFECT OF ACETYL SALICYLIC ACID ON FIBRINOLYSIS

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Summary : Fibrinolytic activity was determined in 30 healthy volunteers before and after acetyl salicylic acid administration. The activity was statistically increased in all the cases after acetyl salicylic acid administration.

Key Words : fibrinolytic activity enhancement by acetyl salicylic acid human volunteers

The phenomenon of fibrinolysis assumed importance after the advancement of thrombolytic therapy. Anticoagulant drugs are shown to be effective in the prevention of thrombus and fibrin formation and further attempts are being made to develop drugs with fibrinolytic activity. Recently attention is focussed on the salicylates which are known to have, in addition to their main analgesic and antipyretic actions, effects on coagulation, prothrombin and bleeding time. Attempts have also been made to explain the anti-inflammatory action of the sodium salicylate through their inhibitory action on fibrinolysin. Acetylsalicylic acid does not however inhibit this enzyme (3). Menon (4) has reported an increase in the fibrinolysin activity in 6 healthy volunteers. Due to the controversy in the action of salicylates on the fibrinogen, the authors felt interested in studying the effect of acetyl salicylic acid on fibrinolytic activity in a larger number of volunteers.

MATERIALS AND METHODS

The subjects chosen for the study were 30 healthy male medical students between 17 to 22 years of age. An extensive personal and family history of all these subjects was elicited for excluding any remote possibility of acetyl salicylic acid sensitivity. A complete clinical check up was done. Fasting blood samples were collected and the subjects were asked to take 400 mg of acetyl salicylic acid every six hourly followed by a larger dose of 600 mg before going to bed. Next morning another fasting blood sample was collected. Fibrinolytic activity was determined by Fearnley's method (2). For studying placebo effect a group of 10 volunteers received lactose in the same doses as acetyl salicylic acid.

RESULTS

The fibrinolytic activity was increased in all the 30 subjects after the administration of acetyl salicylic acid (Table I). The increase was statistically significant. There was no change in the fibrinolysis time before and after the administration of lactose.

TABLE I: Effect of acetyl salicylic acid on fibrinolysis time before and after acetyl salicylic acid administration (Total dose 1800 mg).

Mean fibrinolytic time (min \pm .E.)

Control	Placebo lactose	After acetyl salicylic acid	
320 \pm 14.7	312 \pm 13.6	263 \pm 12.5	P < 0.05

DISCUSSION

O'Brien (5) and Quick (6) suggested that acetyl salicylic acid can find a useful place in the treatment of thrombosis. Attempts have been made to elucidate the action of acetyl salicylic acid and other salicylates on various steps involved in the formation of thrombus. From the observation of Menon (4) and also of the present study, it is clear that acetyl salicylic acid has a definite effect on fibrinolytic activity. Menon (4) could not establish the relation between hypoglycaemia and increase in fibrinolytic activity. Chakrabarti *et al* (1) reported that cortisones also increase the fibrinolytic activity in inflammatory as well as in non-inflammatory conditions. They failed to ascribe the quickening of the observed lysis time to change in substrate concentration. Since acetyl salicylic acid and cortisone, both are known to possess anti-inflammatory actions (7) and are used in various rheumatic conditions, it is postulated that acetyl salicylic acid might be elevating the fibrinolytic activity by acting at some process which is concerned with physiology of inflammation, the exact mechanism of which is not yet understood.

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