THE USE OF EPINEPHRINE ORALLY AND EPINEPHRINE IN OIL IN THE TREATMENT OF ASTHMA AND THE SEVERE COUGHS OF TUBERCULOSIS AND BRINCHITIS

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ORAL ADMINISTRATION OF EPINEPHRINE

In our early experience in treating asthmatic patients with fresh raw adrenal sandwiches we observed both cortin and epinephrine effects. The relief of the paroxysm showed that the action of the epinephrine was unquestionable, and proved that epinephrine is absorbed in active form from the the digestive tract. Epinephrine was produced in our laboratory as a by-product of our cortical products. We began using it quite generally, and found it to be effective. During the past seven years we have employed it orally in the treatment of various forms of allergy, especially those in children. It is especially useful in children because of the ease of administration.

We administer it in a solution of wild cherry syrup in which one dram represents 1/16 gr. of epinephrine. If an immediate effect is desired, we have the patient hold the solution in the mouth for several minutes before swallowing. In this way absorption takes place from the mucous membranes of the mouth and throat. Our ~~early~~ experience has shown that the remedy must always be taken when there is food in the stomach; otherwise, the patient may experience severe cramps.

Its absorption is slow, and the effect gradual. The effect, which is noted about one-half hour or more after the dose is taken,

continues for from three to six hours. None of the disagreeable effects such as nervousness and tachycardia, which sometimes follow the hypodermic administration of the watery solution of adrenalin have been noted.

We have not confined our use of epinephrine to allergies, but have used it in many types of severe cough such as those which accompany bronchitis and tuberculosis.

The use of epinephrine in cough is based on its relaxing effect upon the bronchi. The vagus activates the bronchial musculature, and the sympathetics inhibit it. Activation produces a narrowing of the bronchial lumen, and an increased secretion of the bronchial mucous glands; while inhibition relaxes the bronchial walls, widens their lumen, and lessens the secretion of the mucous glands. Epinephrine being a product of differentiated sympathetic cells is responsible for the production of sympathetic effects on the bronchial structures.

A chief excitant of the cough reflex in these severe, harassing coughs is the secretions which are held imprisoned by the narrowed bronchus. When the bronchus has been relaxed, and the secretion has been expelled, the cough reflex is quieted for a time.

In instances where quick action is desired, as in severe asthmatic paroxysms, injections of adrenalin should be given hypodermically. But for prolonged, continued action, either oral administration, or the use of adrenalin in oil as recently supplied, is to be preferred.

Some tuberculous individuals who are not able to obtain relief from ~~their harassing cough by~~ the usual cough sedatives such as codeine, morphia, and dilaudid, have experienced satisfactory relief from the oral administration of 1/16-gr. of epinephrin from three to four times a day, always with meals, or at least with not less than a half glass of milk. Severe bronchitic coughs have also shown a satisfactory response.

EPINEPHRINE IN OIL

The recently added preparation of epinephrine in oil is a valuable remedy in our armamentarium. Like epinephrine used orally, it is especially satisfactory where a prolonged effect is desired. The use of epinephrine in oil was first reported by Keeney, in 1938, although he refers only to its use in asthma, we have found it useful in all instances where a prolonged epinephrine effect is desired. It is especially useful in cases of harassing cough which keeps the patient awake at night. This may be relieved by two or three injections a day, one given about three hours before the time of retiring.

It is interesting that there should be a difference in the promptness of its action in the cough of the tuberculous patient and the cough of the allergic, asthmatic patient. In the latter case relief usually appears within a half-hour, while in the former instance a longer time is required for a maximum effect. This may be due to the more ephemeral nature of the asthmatic process. When an effect has been obtained in the non-asthmatic

cough it may be prolonged in some instances for as much as twelve hours. Often one injection a day is sufficient to give the patient comfort. It is rarely necessary to give more than two - one in the morning and one at night.