

two serious objections which can be offered to this operation, viz., the pain attending it and the danger of inoculation. As I have before stated, the former may be controlled, and it is believed that all danger of the latter is effectually removed by the use of antiseptics. This as yet, however, is an open question.—*N. Y. Medical Review, July 9, 1887.*

A CLINICAL STUDY OF ANTIPYRIN AND ANTIFEBRIN.

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I am just convalescing from an attack of fever lasting five weeks, during which I made a careful study of antipyrin and antifebrin. The disease was neurasthenia complicated with malaria. My notes from observations taken every fifteen minutes for a long period of time would almost fill this journal, and therefore only generalizations are given.

The dose of antipyrin taken was at first 10 grains, which was increased gradually to 23 grains for a person of nervous temperament, who requires average doses of other drugs. Toleration of antipyrin increases after a week's use of the drug, and the dose must be constantly increased if it be used long.

Ten minutes after the ingestion of a dose of antipyrin in gelatin capsules, an aromatic warmth is felt in the stomach to a slight degree, and ten minutes later a glow seems to spread over the whole body, and is followed by sweating; and in a neurasthenic, irritable person, considerable tranquillity of mind ensued five minutes later. This psychological effect lasted half an hour.

In thirty-five minutes the temperature fell 1° F. The sweating gradually lessened, and ceased in two hours and a half after the drug was taken. In two hours from its ingestion the temperature had fallen about 3° F. This was regardless of the temperature when the antipyrin was taken, which varied from 101° to 105° F. However, it never lowered the temperature below the norm.

The above phenomena were constant. Almost constantly, about fifteen minutes after the dose was taken, the breath had an odor of ol. carui, sometimes very strong and often more faint. This lasted for about an hour.

The fever invariably began to rise in two and a half hours after the dose of antipyrin was taken, and the antipyretic effect was certainly only transitory. The after-effect was a general, indescribable feeling of greater *malaise*. The only effect on the pulse was its slowing, but the pulse was affected in great disproportion to the temperature, and became, on a basis of temperature, abnormally high, though absolutely lower. There was little or no change in the amount and gross appearance of the urine.

Antifebrin was used after antipyrin was begun, and at the same time alternately with the latter. The dose ranged from 5 grains to 13 grains. A

tolerance was established to it. A number of times the same caraway odor on the breath was perceived, causing very interesting speculations as to the resultant of the corporeal chemistry upon both antipyrin and antifebrin. The aromatic, stomachic sensation was very seldom felt, the bodily glow and perspiration being generally the first effects noticed from antifebrin when the caraway breath is absent.

Antifebrin causes a fall of temperature in an hour or an hour and a half after its ingestion in gelatin capsules. The fall from one dose is about 4° F., though the norm was never passed in its downward tendency. The decline was maintained for an average of six hours, after which the temperature began to rise again. It has no permanent effect on the fever if its constant use for several weeks is a criterion. It gently stimulated the mind and affected the muscular system almost precisely like coca. I was several times as strong while under the influence of antifebrin as at other times, and intellectual indolence gave way to more energy. The tonic of the pulse was increased and the rate slowed. Its effect on the pulse resembles that of *convallaria majalis*. Antifebrin is decidedly diuretic and less diaphoretic than antipyrin. There were no after-effects, not even the depression to be expected after the stimulation it produced. Once the dose of antifebrin had not the slightest physiological effect. The conditions were exactly the same as at other times, as near as I could discover, after very careful examination. An ordinary dose of antipyrin immediately acted as usual, and antifebrin afterwards did well. Perhaps some internal conditions hardened the capsule. Every dose of both drugs was taken in an empty stomach. My curiosity led me to wish for another failure that I might try another dose of antifebrin, but the opportunity never came. To sum up,—

ANTIPYRIN.

ANTIFEBRIN.

Lowers temperature in half an hour. In an hour or more.

Effect lasts two hours. Effect lasts six hours.

More diaphoretic. More diuretic.

Depressing after-effects. No after-effects.

Cerebral sedative. Cerebral vaso-motor and muscular (?) stimulant.

Dose, 15 to 30 grains. Dose, 5 to 15 grains.

Tolerance from continued use. Ditto.

The above table will suggest the selective use of the two drugs. From the patient's point of view (which is really coincident with the physician's), antifebrin is much to be preferred in continued fevers, because the dose is one small capsule instead of three; the effect lasting so long requires one-third the number of doses; the tonic stimulation excels the depression and after *malaise*, and the cost is one-fourth that of antipyrin. The antipyretic action of antifebrin is as strong or stronger than that of antipyrin, and its only objec-