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Relation of the Drugs Acting on the Autonomic Nervous System to the Effect of Analgesics

Author(s)

Fujimura, Hajime

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24. Relation of the Drugs Acting on the Autonomic Nervous System to the Effect of Analgesics

Hajime FUJIMURA

(Ogiku Laboratory)

In order to investigate the above mentioned theme, the effect of various drugs in combined use with drugs acting on the autonomic nervous system was studied using a modification of Hardy's radiant heat technique in man.

The pain threshold elevating effects of (I) Morphine, (II) Dolantin, (III) Ohton (1,1-Dithienyl-3-dimethylamino-butene-1), (IV) L-Ephedrine, (V) dl-Desoxyephedrine, (VI) 8-Isolan (3,4-Methylenedioxyphenyl-isopropylamine), (VII) Benadrin (Diphenhydramine), (VIII) Parpon-M (Dimethylaminoethylbenzylate) and (IX) Avacan-M (Isoamyl ester of a-[N-(β-Dimethylaminoethyl)]-Aminophenylacetate) were markedly reduced by Priscolin or Regitine (adrenolytics), and also by Prostigmine (cholinergics). On the contrary, they were potentiated by L-Ephedrine or d-Desoxy-methylephedrine (adrenergics). For example, Figs. 1 and 2 show the influence of various autonomic drugs to VII and II respectively. (Curves represent average of the

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pyruvic $\leftrightarrow$ oxaloacetic $\leftrightarrow$ malic $\leftrightarrow$ fumaric

acetic $\leftrightarrow$ citric $\leftrightarrow$ α-ketoglutaric $\rightarrow$ succinic $\rightarrow$ propionic
second pain threshold for 6 subjects by cross-over test).

Compounds (I)~(IX) were used as hydrochloride. It is well known that II, III, VII, VIII and IX indicate the anticholinergic properties, while IV, V and VI possess the adrenergic effects.

From the above results, it can be readily supposed that the analgesic effect of these drugs has a close connection with their adrenergic (sympathomimetic) as well as anticholinergic (Parasympatholytic) properties.