The effect of organic compounds upon vitamin C synthesis in the rat.

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Abstract: The excretion of ascorbic acid by albino rats maintained as previously described (Abst. 3015, Vol. 9) was greatly accelerated by a series of compounds, most of them having in common the characteristic of functioning in vivo as depressors of the nervous system. Of the barbituric acid derivatives, the most active were sodium phenobarbital and calcium ipral, 20 mg. of each daily raising the average daily
acid excretion from 0.2 to 10 mg. within a few days. Other hypnotics had a similar effect, paraldehyde and chloretone in doses of 20 mg. daily having the greatest influence on the ascorbic acid excretion, which amounted to 11 and 18 mg. daily, respectively. Among the antipyretics the pyrazolone derivatives, amino-pyrine and antipyrine were most effective, causing in doses of 20 mg. daily, a daily excretion of 7 mg. ascorbic acid within 5 to 6 days. Phenols, salicylates, sulphanilamide and sulphapyridine were only slightly active; a dose of 20 mg. narcotine or nicotinic acid increased the excretion of ascorbic acid to 4 and 5 mg. daily, respectively. A number of alkaloids caused no increased excretion.

Biological tests with guineapigs for the presence of vitamin C [ascorbic acid] demonstrated that rats receiving narcotine and sodium phenobarbital confirmed the positive results obtained by titration with 2: 6-dichlorphenol indophenol. The excretion of ascorbic acid by rats after daily administration of 20 mg. of sodium phenobarbital or chloretone was observed for two months, during which period the animals excreted 20 to 30 mg. of ascorbic acid daily. It is assumed that synthesis of endogenous origin takes place. The percentage recovered from rats' urine of ascorbic acid orally administered rapidly as the amounts administered increased. If, however, the ascorbic acid was injected intraperitoneally, the excretion rate was greater, amounting to 60 per cent. No indication was found that the ascorbic acid was conjugated with any of the toxic substances but its endogenous production appeared to be related to the detoxication processes in the animals. E. Kodicek.

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