The Presence of Conjugated Dopamine in Normal Human Plasma

Although dopamine has been identified in free form in adrenal medulla,¹⁾ brain, spleen, splenic nerves, pancreas, lung, liver and intestine,²⁾ and also in urine (about 500 μg per day) both in free and conjugated form, it has not been found in normal human plasma,³⁾ probably owing to its low concentration. We found dopamine mostly in conjugated form at the level of ng per ml in normal human plasma by large volume injection method.⁴⁾

Fig. 1. Plasma Dopamine Liberated by Acid Hydrolysis

Blood was obtained with a heparinized syringe from normal adults. The plasma was prepared by centrifugation of the blood at $4000 \times g$ for 30 min, and deproteinized with perchloric acid at the final concentration of 0.4N. Centrifugation of the solution at $20000 \times g$ for 30 min separated the clear supernatant, which was sealed in a siliconized glass tube *in vacuo* and heated at 100° . As shown in Fig. 1, free dopamine was liberated in 20 min and determined by gaschromatography previously reported.^{4,5)} The identification was carried out by comparison of the retention times on columns of 2% GE-XF 1105 and 2% QF-1 with those of authentic dopamine.

The type of conjugation of plasma dopamine was suggested to be a sulfate from its behavior in acid hydrolysis (Fig. 1), and detailed studies are under continuation.

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