The Presence of Conjugated Dopamine in Normal Human Plasma

Although dopamine has been identified in free form in adrenal medula, brain, spleen, splenic nerves, pancreas, lung, liver and intestine, and also in urine (about 500 µg per day) both in free and conjugated form, it has not been found in normal human plasma, 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.

Blood was obtained with a heparinized syringe from normal adults. The plasma was prepared by centrifugation of the blood at 4000 x g for 30 min, and deproteinized with perchloric acid at the final concentration of 0.4 N. Centrifugation of the solution at 20000 x 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. 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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