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原著

エリソルビン酸とアスコルビン酸摂取後の尿中排泄経過

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Urinary Excretion of Erythorbic Acid and Ascorbic Acid After Administration of the Solution

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Abstract

There have been few papers reported on the determination of erythorbic acid (d-iso ascorbic acid, one of stereo isomers of L-ascorbic acid, ErA) excreted in human urine. In this paper, the urinary excretion rate of ErA and ascorbic acid (AsA) after the oral administration of both acids to human subjects was determined. Six female volunteers were orally given ErA and ASA solutions simultaneously following two different doses of the acids, I. E., each 2 mg per kilogram body weight and 3 mg per kilogram body weight, respectively. Urinary excretion rate of ErA, ASA and creatinine was determined by high performance liquid chromatography (HPLO from the end of the administration until 10 hours later, at 2 hour intervals. Results were obtained as follows : 1) The concentration of both acids attained a maximum in the 2-4 hours urine of the subjects and did not recover the predose level within 10 hours after administration following each dose. 2) At a dosage of 2 mg per kilogram body weight, the percentage of total dose recovered of ErA and ASA excreted in the O-8 hours urine of the subjects to the administered dose was computed to be 57% and 50%, respectively. 3) At a dosage of 3 mg per kilogram body weight,

the percentage of total dose recovered of ErA and ASA excreted in the O − 8 hours urine of the subjects to the administered dose was computed to be 45% and 71%, respectively. The concentration and excretion rate of ErA in the 2–4 and 4–6 hours urine samples were significantly smaller than those of ASA ($p < 0.05$). Based upon these findings, it is supposed that absorption and/or excretion of ErA is less than those of AsA.

要 約

エリソルビン酸(ErA)とアスコルビン酸(AsA)を女性ボランティア6人に体重1kgあたり各2mgずつと各3mgずつを水溶液にして同時に経口摂取させ,摂取後2時間おきに10時間後まで尿中のErAとAsAの排泄速度を調べた.尿中のErAとAsAおよびクレアチニンは高速液体クロマトグラフィーにより測定し,以下の結果を得た. ①尿中のErAとAsAの濃度は,2mg群,3mg群のいずれでも2～4時間尿で最大となり,その後徐々に減少するが10時間後も排泄は継続していた. ②2mg群におけるO-8時間尿のErAとAsAの総排推量を摂取量との比率で見ると,ErAが57%,AsAが50%で,両者に有意の差は認められなかった. ③3mg群における0～8時間尿のErAとAsAの総排泄量を摂取量との比率で見ると,ErAが45%,AsAが71%で,ErAはAsAより有意に小さいことが認められた(p