Identification of N-ethylglycine in urine of cancer patients with metastatic bone disease

Yasuto Tsuruta, Maya Matsumoto, Hirofumi Inoue, Sayaka Munemura, Takashi Ishizu, Shigeru Yamano*, Haruo Iguchi**

ABSTRACT
Background: Previously, a HPLC method for the determination of N-terminal prolyl dipeptides, proline and hydroxyproline in urine with fluorescence detection after pre-column derivatization with 4-(5,6-dimethoxy-2-phthalimidinyl)-2-methoxyphenylsulfonyl chloride (DMS-Cl) was developed to study the relation between those analytes and bone diseases. When the urinary analytes were measured, a large peak due to an unknown substance was recognized in the chromatograms of cancer patients with metastatic bone disease, although it was scarcely present in normal subjects. In this study, we identified the unknown substance.

Methods: The fluorescent fraction based on the unknown substance was collected using HPLC and the structure of the fluorescence product was analyzed with MS, 1H NMR and 13C NMR.

Results: The fluorescence product based on the unknown substance was established to be a DMS-derivative of N-ethylglycine.

Conclusions: Excretion of N-ethylglycine in the urine of cancer patients with metastatic bone disease is recognized, although N-ethylglycine is scarcely excreted in the urine of normal subjects.
* Faculty of Pharmaceutical Sciences, Fukuoka University  
福岡大学薬学部  
** Institute for Clinical Research, Shikoku Cancer Center  
四国がんセンター臨床研究部