転移性骨腫瘍患者の尿中 N− エチルグリシンの同定

鶴田泰人、松本真弥、井上裕文、宗村小夜香、
石津　隆、山野　茂*、井口東郎**

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 tructure of the fluorescence product was analyzed with MS, ^{1}H NMR and ^{13}C 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.

　抄録　これまでに 4-(5,6- ジメトキシ -2- フタルイミニジル)-2- メトキシフェニルスルホニルクロリド (DMS-Cl) を用いて骨代謝に関連するといわれている尿中 Hyp、Pro 及びプロリルジペプチド類の高感度 HPLC 分析法が確立されており、この分析法により一部の転移性骨腫瘍の患者尿を分析したとき、健常人尿に比べて顕著に大きい未知成分に基づくピークが認められた。本研究では、この未知成分の同定を試みた。分取した尿中未知成分の DMS 誘導体について、^{1}H-NMR、^{13}C-NMR、MS により構造解析を行った。その結果、転移性骨腫瘍の患者尿中に認められた未知成分は *N-* エチルグリシンであることを同定した。

* 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