Letter to the Editor

Elevation of serum procalcitonin level in a patient with chronic myelocytic leukemia

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Procalcitonin (PCT) is produced in the thyroid gland as the precursor of human calcitonin [1]. PCT is a 116 amino acid protein with a molecular weight of approximately 13 kD and is composed of an N-terminal region, mid-regional calcitonin, and the C-terminal katacalcin [2]. Prehormone levels in serum have been found to be elevated in medullary thyroid carcinoma as well as in a large number of other tumors [4, 5]. C-reactive protein (CRP) is a typical marker of acute inflammation and bacterial infection [3]. Recently, PCT was found to be a new and innovative infection parameter [6], and to provide better diagnostic validity in the evaluation, monitoring and prognostic estimation of severe infections and sepsis than established inflammation parameters [7, 8].

We therefore investigated whether serum PCT levels in patients with haematologic malignancies are clinically useful. Serum PCT levels were determined by means of a specific and ultrasensitive immunoluminometric assay (LUMI test PCT, Brahms Diagnostica, Berlin, Germany). Serum PCT levels were below the limit of detection in 10 healthy adult volunteers. We found elevation of serum PCT level in a 49-year-old male patient with haematologic disorder. White blood cell count in the peripheral blood was $11.44 \times 10^4/\mu l$ with myeloid series. Neutrophil leukocyte alkaline phosphatase level was abnormally low. Ultrasound examination of the abdomen revealed marked hepatosplenomegaly. Fusion gene of BCR-ABL on the Philadelphia chromosome was detected by fluorescence in situ hybridization. Based on the results of these laboratory examinations, we diagnosed chronic myelocytic

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leukemia (CML) in the chronic phase. At the time of diagnosis, there were no clinical symptoms of infection, and PCT level and CRP level in the serum were 0.15 ng/ml and 0.4 mg/dl, respectively. Both serum PCT level and white blood cell count in the peripheral blood were decreased during the course of chemotherapy, but serum CRP level remained within the normal reference interval, as shown in Fig. 1. Serum PCT level thus changed independently of serum CRP level through this patient’s clinical course. These findings suggest that PCT antigen might be expressed and produced in chronic myelocytic leukemia cells. This could be assessed since PCT mRNA expression has been described in peripheral blood mononuclear cells from healthy humans by reverse transcriptase polymerase chain reaction using a novel primer set [9].

No conclusions can be drawn from the elevation of the serum PCT level detected in a single patient with CML. The aim of this letter is simply to propose the investigation of changes in calcitonin levels of serum and in peripheral mononuclear cells from CML patients to cheque whether it could be used as a monitoring indicator of chemotherapeutic efficacy.

REFERENCES