RELATIONSHIP BETWEEN BIOLOGICAL CHARACTERISTICS OF GASTRIC CANCER AND SERUM LEVELS OF STROMELYasin(MMP-3) AND TISSUE INHIBITOR OF METALLOPROTEINASES (TIMP) IN GASTRIC CANCER PATIENTS

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INTRODUCTION

Stromelysin (matrix metalloproteinase-3; MMP-3), which degrades extracellular matrix macromolecules including type IV collagen, laminin, and proteoglycans, is considered to participate in cancer invasion and metastasis¹. TIMP (tissue inhibitor of metalloproteinases) can inactivate the metalloproteinases. Therefore, TIMP have been reported in several studies to act as proteins suppressing cancer metastasis².

To investigate the mechanism of gastric cancer invasion and metastasis, we measured the serum levels of MMP-3 and TIMP in patients and studied the relationship between these levels and clinical and pathological findings in gastric cancer.

MATERIALS AND METHODS

Serum samples were collected from 11 healthy volunteer as controls and 52 gastric cancer patients (16 differentiated type, 32 undifferentiated type) before operation.

The serum levels of MMP-3 and TIMP were measured by means of a one-step sandwich enzyme immunoassay using each monoclonal antibody³. The relationship between these levels and clinical and pathological findings in gastric cancers were analyzed following the general rules for gastric cancer study in surgery and pathology⁵.
RESULTS AND DISCUSSION
The MMP-3 level in differentiated cancer was higher than that in undifferentiated (p<0.005), whereas the TIMP level in undifferentiated cancer was high (p<0.05) and especially in scirrhous cancer (Fig.1(a)(b)). For that reason the ratio of each level of MMP-3 to that of TIMP in differentiated cancer tended to be lower than that in undifferentiated (Fig.1(c)).
These results suggested that the mechanism of gastric cancer metastasis might be different in differentiated cancer from that in undifferentiated. In other words, the degree of extracellular matrix degradation caused by metalloproteinases might be dominant in differentiated cancer rather than in undifferentiated cancer in gastric cancer metastasis.

Fig.1 Comparison of Serum Levels of MMP-3, TIMP and Ratio(TIMP/MMP-3) and Histological Type in Gastric Cancer Patients

REFERENCES