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Topic : Tumor Cell Implantation

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Adiponectin suppresses plasminogen activator inhibitor-1 induced by TNF- $\hat{\pm}$ in human peritoneal mesothelial cells

Plasminogen activator inhibitor-1 (PAI-1) in malignant ascitis was higher compared with non malignant ascitis. Previous reports suggest that PAI-1 may play an important role in angiogenesis and tumor growth. On the other hand, adiponectin, a circulating peptide hormone produced in adipose tissue, was reported to suppressed the development of tumor growth and peritoneal metastasis in nude mice. In this study, we evaluated the effect of adiponectin on the production of PAI-1 and tissue-type plasminogen activator (t-PA) in human peritoneal mesothelial cells.

Human peritoneal mesothelial cells (HPMC) were preincubated for 12 hours with various concentrations of human recombinant adiponectin (0.1, 0.5, 1.0, 10 and 20 $\hat{\mu}$ g/mL), then exposed to tumor necrosis factor alpha (TNF- $\hat{\pm}$)(10ng/mL) for 24hours. Levels of PAI-1 and t-PA mRNA in HPMC were assessed by the real-time reverse transcriptase polymerase chain reaction (RT-PCR) technique.

Incubation of HPMC with TNF- $\hat{\pm}$ resulted in significantly increased PAI-1 and decreased t-PA synthesis (Positive control). Adiponectin suppressed the expression of PAI-1 mRNA in HPMC in each dose. The relation between the expression of PAI-1 and the dose of adiponectin was not observed. On the other hand, t-PA mRNA in HPMC was not suppressed by adiponectin.

The results indicate that fibrinolytic capacity of peritoneal space is promoted because exposue of peritoneal mesothelial cells to adiponectin reduced the level of PAI-1 mRNA expression. This data suggest that peritoneal metastasis reduced by adiponectin may be mediated through reduction of efficient of angiogenesis and tumor growth by PAI-1.