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THE OVEREXPRESSION OF PLATELET-DERIVED ENDOTHELIAL CELL GROWTH FACTOR /THYMIDINE PHOSPHORYLASE IN INTERSTITIAL CYSTITIS AND ITS RELATIONSHIP WITH ANESTHETIC VESICAL VOLUME AND CYSTOSCOPIC FINDINGS DUREING HYDRODISTENTION

Aims of Study

The pathogenesis of interstitial cystitis (IC) still remains unclear, but abnormal vessels or neovascularity are usually observed on cystoscopy of IC bladders. Glomurulation and bleeding around Hunner's ulcer are also familiar scene during hydrodistention of IC bladders but the mechanism of these pathological findings has been unexplained, but from these findings we can hypothesize that the pathogenesis of IC could involve vascular disorder to some extent. In this study we estimate the angiogenic growth factor (PD-ECGF/TP) and attempt to evaluate its relationship between the anesthetic vesical volume and cytoscopic findings during hydrodistention.

Methods

To the patients of suspicious of having IC, hydrodistention was performed under spinal anesthesia and the bladder was filled with 60-80 cm of water for about 5-10 minutes. The maximal bladder capacity during hydrodistention was estimated as anesthetic vesical volume. Bladder specimens were obtained from redish or coiled capillary-rich bladder mucosa by cold-cup biopsy before hydrodistention. Platelate-derived endotherial cell growth factor/ thymidine phosphorylase (PD-ECGF/TP) in bladder tissue was quantitatively measured by sandwiched ELISA with mouse monoclonal antibodies 104B (IgM) and 232 to 2 (IgG1).

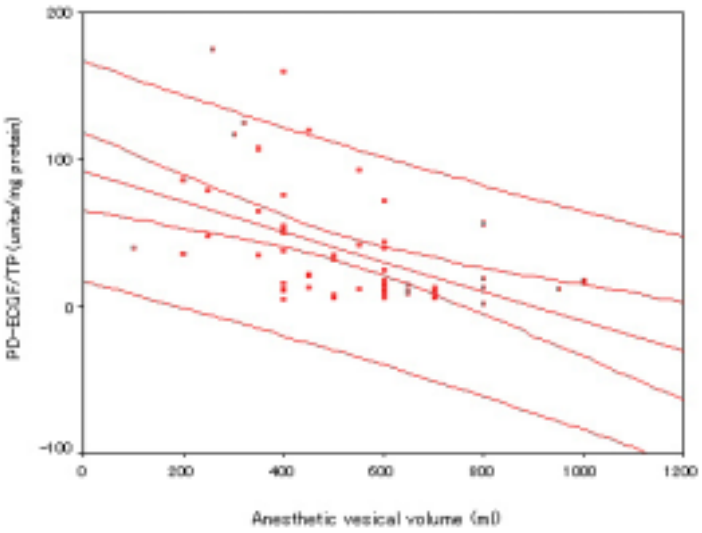
Results

Eighty five patients (72 female and 13 male patients) with a mean age 51.5 ±16.1SD, who had glomerulation or ulcer during hydrodistention, were included in this study. On the other hand, five bladder specimens were obtained as control subjects from patients with renal bleeding. The mean measurement of PD-ECGF/TP (units/mg protain) and anesthetic vesical volume (ml.) were 38.2±39.8SD (n=61) and 554.8±190.5SD (n=85), respectively. The expression of PD-ECGF/TP with ulcer type (86.0±46.5SD, n=15) was significantly higher than that with non-ulcer type (22.1±19.7SD, n=46) ($p<0.005$). These measurements are significantly higher than that of control cases (6.5±2.8SD, n=5, $p<0.001$) (Table1). Furthermore, the PD-ECGF/TP statistically has a linear correlation with anesthetic vesical volume (correlation coefficient: $r=-0.488$, $p<0.001$) (Fig.1).

Table1.Results of the measurement of PD-ECGF/TP (units/mg protain)

	PD-ECGF/TP
Ulcer type (n=15)	86.0±46.5SD
Non-ulcer type (n=46)	22.1±19.7SD
Total (n=61)	38.2±39.8SD
Control (n=5)	6.5±2.8SD

Fig.1. The relationship between the PD-ECGF/TP(Y) and anesthetic vesical volume(X): they have a negative linear correlation and mathematical expression of their regression line can be described as: Y=-0.101X+91.499 (r=-0.488).



Conclusions

This study shows that IC bladders demonstrate over expression of platelet-derived endothelial growth factor (PD-ECGF/TP). From the fact that the expression of PD-ECGF/TP is higher in ulcer type IC than in non-ulcer type and has a negative linear correlation with anesthetic vesical volume, the expression of angiogenic growth factors may play an important role in the pathogenesis and progression of interstitial cystitis and might reflect the severity of the disease.