Efficacy of HANP and PDE III Inhibitor Combination Therapy for Restoring Cardiac Function and Protecting Renal Function in Patients with Serious Heart Failure Complicated by Pleural Effusion and Pericardial Effusion

Takuo Ogawa
Internal medicine
Sougou Kamiida Daiichi Hospital

BACKGROUND/AIMS: This study investigated the effects of administration of human atrial natriuretic peptide (hANP) and phosphodiesterase III inhibitor (PDE III-I) on the restoration of cardiac function and the protection of renal function in patients with serious heart failure.

METHODS: Subjects were 32 inpatients with serious heart failure complicated by pleural effusion (Ple). Patients were divided into 3 groups according to ejection fraction (EF) as determined by echocardiography: Group (Gr) A (n=6), in which EF was 50% or higher; Gr B (n=6), in which EF was lower than 50% but Ple rapidly resolved within 3 days after conventional treatment without hANP and PDE III-I; and Gr C (n=20), in which EF was lower than 50%, pericardial effusion was coexistent, and no marked decrease in Ple was noted 3 days after admission to the hospital. Patients in Gr C were treated with combined hANP and PDE III-I in addition to conventional treatment after diagnosis. In all groups, Ple was resolved finally. Cardiac function was assessed based on blood BNP levels. Renal function was assessed based on urinary β2-microglobulin (β2) levels.

RESULTS: A significant decrease in blood BNP levels was noted after treatment in Gr B and C (both: p>0.01). Urinary levels of β2 after treatment were elevated in both Gr A and Gr B as compared with baseline values. However, in Gr C, there was a significant decrease in urinary levels of β2 after treatment (p>0.05) as compared with baseline values.

CONCLUSIONS:
1) In patients with serious heart failure, hANP and PDE III-I combination therapy was effective in restoring cardiac function.
2) In order to restore cardiac function, protecting renal function may have a very important role.
3) Combined therapy with hANP and PDE III-I was also effective in protecting renal function in patients with serious heart failure.

Keyword: BNP  β2 MG  PERICARDIAL EFFUSION