Acute Effect of Erythropoietin on Plasma Renin Activity and Aldosterone Levels in End-Stage Renal Disease

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Dear Sir,

Approximately one third of the patients treated with recombinant human erythropoietin (rhEPO) will experience either an aggravation of preexisting hypertension or will develop de novo hypertension [1]. But the underlying mechanism is unclear and various causes such as the increased blood viscosity and total red cell mass inducing an increase in peripheral resistance [2] and the reversal of compensatory vasodilatation induced by renal anemia [3] have been proposed by several studies before. Besides, some investigators have suggested that rhEPO itself has some effect on renin-angiotensin-aldosterone axis. So, it has been proposed that the alterations in this axis may contribute to the changes in blood pressure during rhEPO treatment [4,5]. In order to clarify the acute effect of rhEPO on plasma renin activity (PRA) and aldosterone secretion, we studied PRA and aldosterone levels after rhEPO injection in 9 predialysis uremic patients.

We included 9 patients with chronic renal failure, untreated by dialysis previously. The patients had never taken rhEPO, antihypertensives, and the drugs affecting the renin-angiotensin axis and aldosterone secretion such as aldosterone antagonists and angiotensin-converting enzyme inhibitors. Patients were maintained at bedrest in supine position for 6 h prior to rhEPO injection and they kept their supine position throughout the test. After the baseline sampling at 8.00 a.m. rhEPO was given intravenously at a dose of 50 U/kg. Blood samples for analysis were taken at 15, 30 and 60 min after injection and blood pressures were recorded simultaneously.

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0.3

Fig. 1. Changes in plasma renin activity and aldosterone levels after intravenous application of rhEPO. 0 ^

Blood pressure readings did not vary significantly during the study ($p > 0.05$). Figure 1 shows that the observed changes in PRA and plasma aldosterone levels after rhEPO injection were not found to be statistically significant ($p > 0.05$). In conclusion, our findings indicate that acute administration of rhEPO does not have any direct effect on PRA and aldosterone secretion in chronic renal failure.

References

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350

-330

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60

30 45

Time after dosing, min

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