Daily Subcutaneous Erythropoietin by Jet Injection in Pediatric Dialysis Patients

T.	Takashi	Suzuki
I.	Ikuo	Takahashi
G.	Goro	Takada

Department of Pediatrics, Akita University School of Medicine, Akita, Japan

Takashi Suzuki, MD, Department of Pediatrics, Akita University School of Medicine, 1-1-1 Hondo, Akita, 010 (Japan)

jet injectors [3]. Jet injection may cause rhEPO to become denatured. We measured the plasma EPO levels, and kept them at about 15-30 mU/ml with jet injection. Maintaining a higher plasma concentration of EPO may prove that daily subcutaneous administration of EPO is more effective than 3 times per week. Daily subcutaneous rhEPO with jet injection is effective and more reliable than syringe injection.

Dear Sir,

Recombinant human erythropoietin (rhEPO) has been used for the treatment of renal anemia in dialysis patients. The efficacy of rhEPO was confirmed when administered subcutaneously rather than intravenously. Some authors reported that daily subcutaneous administration of rhEPO reduced dosage resulting in substantial economic saving and potentially less toxic dosing [1, 2]. It is difficult to administer accurate doses of rhEPO daily. Jet injectors appear to offer an accurate and reliable alternative to syringe injection. We used jet injectors instead of needles and syringes to administer rhEPO.

Four pediatric dialysis patients, a boy and 3 girls entered this study. All were in a stable condition and on CAPD. Primary renal diseases were bilateral renal dysplasia, focal segmental glomerulosclerosis, diffuse mes-angial sclerosis and Alport's syndrome. Mean age as 6.7 ± 5.8 years. The rhEPO dosage was kept at 5 U/kg body weight per day during 12 weeks. The patients were trained to administer rhEPO into their thigh or deltoid subcutaneous area by jet injectors (Twinjector EZ; Japan Chemical Research). All patients were given oral iron supplementation.

No special problem was encountered in training patients to administer rhEPO by jet injectors. Local tolerance to injections was excellent. No systemic side effects, such as hypertension, were seen during this study. The mean hematocrit increased from 22.1 ± 2.5 to $27.9 \pm 3.6\%$ after 12 weeks. All patients reported a clear improvement in well-being and 3 reported increased appetite.

After this study, plasma EPO levels were measured in 2 patients (fig. 1). Plasma EPO levels were kept at about 15-30 mU/ml with daily subcutaneous administration.

In current insulin therapy for diabetes mellitus, needle and syringe are replaced by

Fig. 1. Mean plasma EPO concentrations after intravenous and subcutaneous administration in 2 CAPD patients. $\square$ = Plasma EPO levels after intravenous injection of 35 U/kg rhEPO; Δ

= plasma EPO levels after subcutaneous injection of 35 U/kg rhEPO; · = plasma EPO levels after subcutaneous jet injection of 5 U/kg/day rhEPO.

References

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