Evolution of Parathyroid Hormone (Pth) Levels in Patients on Long-Term Haemodialysis

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Introduction

The spectrum of renal osteodystrophy is changing, as a result of the increasing frequency of low bone turnover and reducing frequency of the high bone turnover form of renal osteodystrophy[1]. Data concerning to the distribution of renal osteodystrophy particularly among long-term dialyzed patients (LTDP) are limited. The aim of this study was to evaluate serum intact parathyroid hormone levels (iPTH) in patients under haemodialysis for more than 10 years and to evaluate their evolution during the same period.

Patients and methods

We determined iPTH in 25 haemodialysis patients (15 males, 10 females, age 57.45±13.30; range 30-83 years) who had been on haemodialysis for 163.29±42.08; range 121-264 months, and in 49 short-term dialyzed patients (STDP), (37 males, 12 females, age65±13.04; range 32-82 years) who had been on haemodialysis for less than 60 months (27.18±14.03; range 10-58 months). We also obtained the iPTH values ten years ago, of the LTDP from their records. All patients were under the same schedule for the prevention and treatment of renal osteodystrophy (Adequate dialysis dose, calcium bicarbonate or calcium acetate as P-binders, regulation of the concentration of the dialysate calcium according to each patient calcium levels, administration of oral or pulse intravenous vitamin D when iPTH levels>250ng/ml, parathyroidectomy if indicated). A chi- square test was applied to examine differences in the frequency of moderate to severe hyperparathyroidism between the two groups under investigation. Significance was set at the level of $p<0.05$.

Results

Eleven/25 (44%) LTDP had moderate to severe hyperparathyroidism, (iPTH>500 pg/ml or parathyroidectomy) vs 11/49 STDP (22.44%), ($p<0.005$) (Fig. 1). Seven/25 (28%) LTDP had iPTH>500 pg/ml ten years ago (vs the same patients currently, $p<0.05$). In the group of LTDP during a period of 10 years 6 patients with 'normal' or low iPTH (<250 pg/ml) progressed to moderate to severe hyperparathyroidism, 2 patients with moderate to severe hyperparathyroidism were improved under medical treatment (iPTH<250 pg/ml), and 17 patients remained stable (Fig. 2).

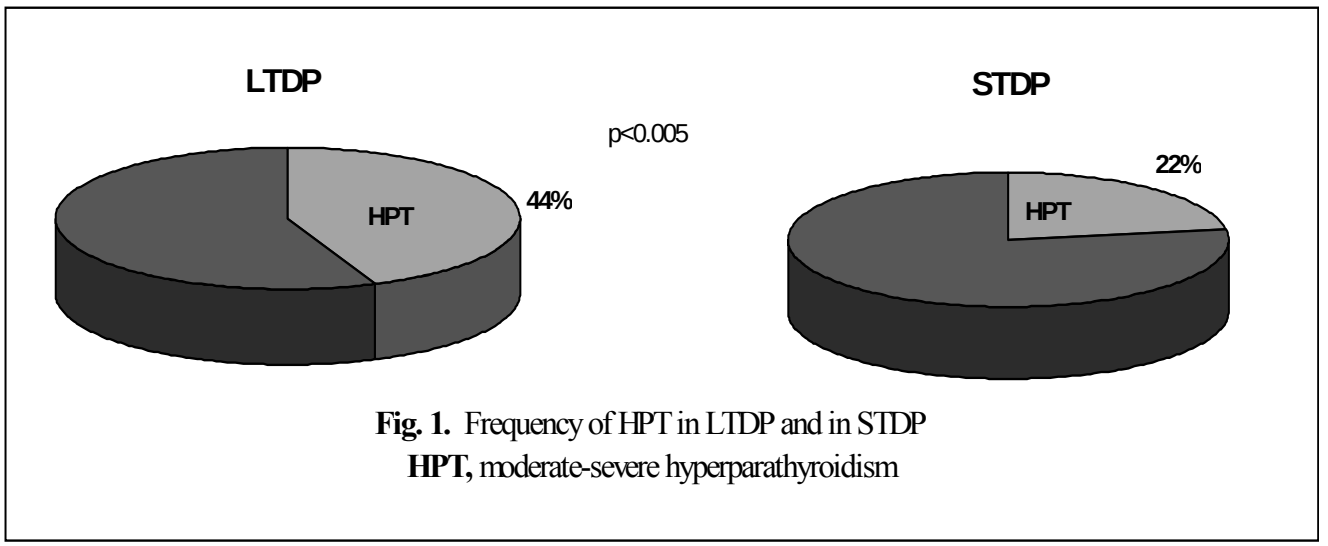

Fig. 1. Frequency of HPT in LTDP and in STDP
HPT, moderate-severe hyperparathyroidism

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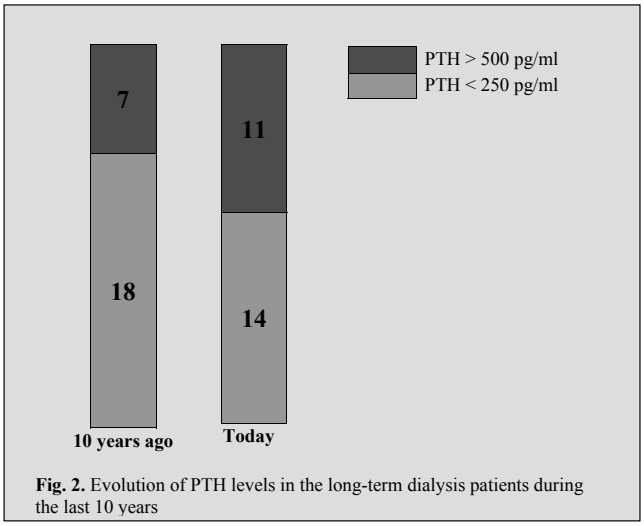

Fig. 2. Evolution of PTH levels in the long-term dialysis patients during the last 10 years

Conclusion-Discussion

Renal patients on long-term haemodialysis we studied had a double frequency of moderate to severe hyperparathyroidism compared with those on short-term haemodialysis. The incidence of moderate to severe hyperparathyroidism in the later group was similar to that referred in the literature in unselected haemodialysis patients' populations.[3] Although bone biopsy is the gold standard method for the accurate identification of renal osteodystrophy, it is generally accepted that serum iPTH>500ng/ml predicts accurately moderate to severe hyperparathyroidism[2], so we used this cut-off limit to classify our patients. There is a huge amount of data concerning the forms of renal osteodystrophy and their distribution among end stage renal disease patients, but these clinical studies neither take into account the patients' duration of dialysis, nor examine the evolution of renal osteodystrophy in these patients.

We found a high incidence of moderate to severe hyperparathyroidism among long-term dialyzed patients. Hyperparathyroidism progresses along the time in a considerable portion of haemodialysis patients despite of appropriate medical care.

References

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