

# EVALUATION OF PHOSPHOCALCIC PROFILE IN PATIENTS ON CHRONIC HEMODIALYSIS : COMPARATIVE STUDY BETWEEN HEMODIALYSIS BICARBONATE AND ACETATE FREE BIOFILTRATION AT 84‰

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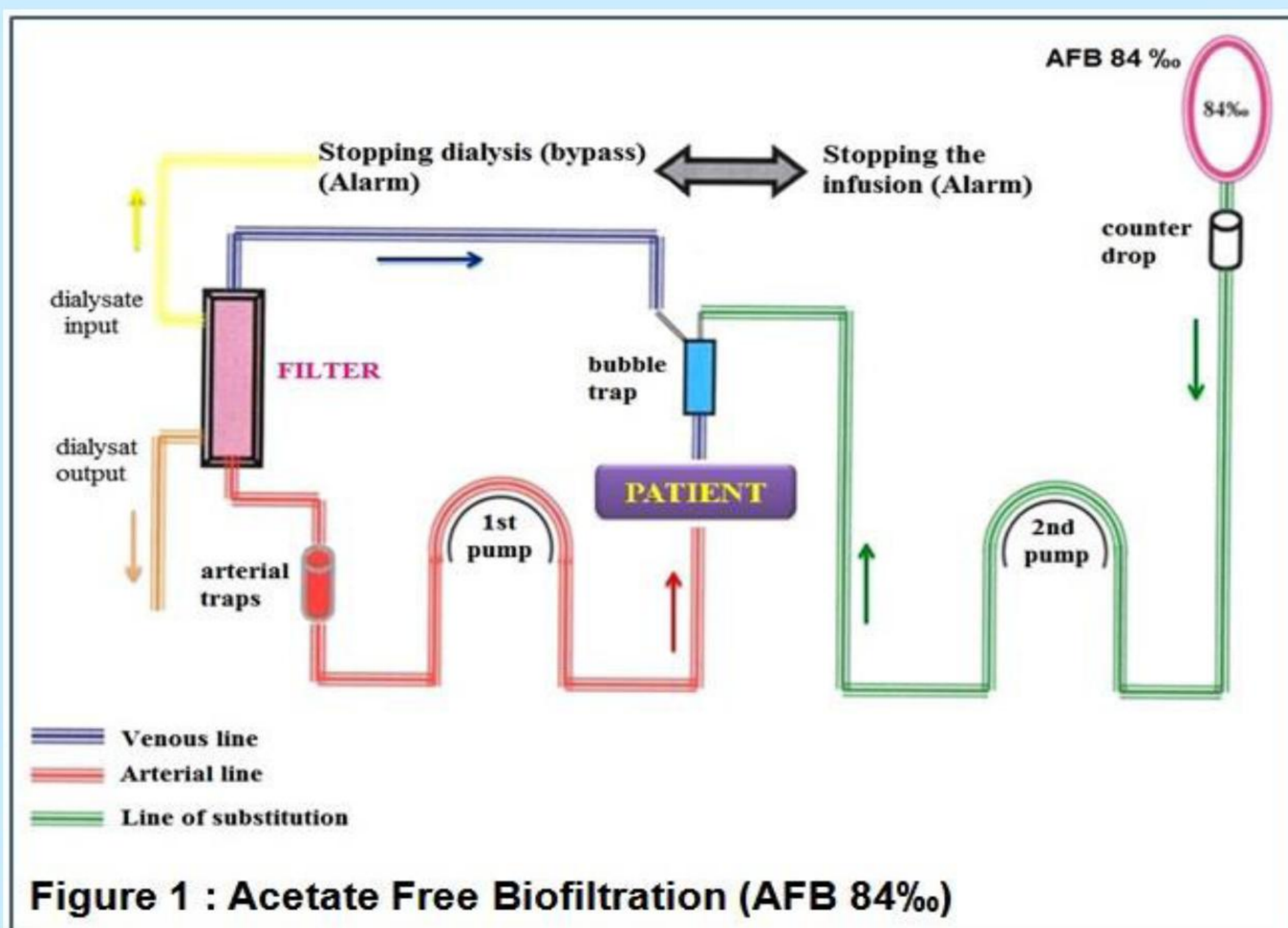
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## INTRODUCTION AND OBJECTIVES

Disorders of phosphocalcic metabolism remain a daily problems of the patient on chronic hemodialysis, responsible for bone and cardiovascular complications. The objective of our study is to evaluate the change in phosphocalcic profile in both techniques: Hemodialysis bicarbonate (HDB) and acetate free biofiltration at 84 ‰ (AFB 84 ‰).

## METHODS

Prospective study, cross-over, conducted in the research unit of the dialysis department of the Military Hospital of Tunis, over a period of 24 months, including 30 patients treated with HDB periodically, each patient had six successive sessions of HDB and 6 successive sessions of AFB at 84 ‰. A total of 357 sessions is performed, distributed in 180 sessions HDB and 177 sessions AFB at 84 ‰. The mean age of patients was  $50 \pm 14.5$  years. The sex ratio was 1.14. The average length of hemodialysis was  $44 \pm 46.04$  months. For the two techniques, we used a dialysate calcium concentration of 1.5 mmol / L, assays of serum calcium and phosphate at the beginning (T0) and end (T4) of the first and 4th sessions, as well as rates of parathyroid hormone (PTH) in predialysis (t0) of the first and the 6th sessions.



## RESULTS

The analysis of results does not show any significant difference between the two techniques for serum calcium rate before and during the hemodialysis session, as has the purification of phosphorus. The difference was significant ( $p < 0.05$ ) for the post-dialysis serum calcium (T4):  $2.32 \pm 0.25$  mmol / L for HDB versus  $2.43 \pm 0.19$  mmol / L for AFB 84‰. A decrease in PTH rate was observed:  $279.39 \pm 222$  ng / ml during the HDB versus  $236.69 \pm 213$  ng / ml in AFB 84 ‰. This decrease was significant ( $p = 0.013$ ) in favor of the AFB at 84 ‰.

The best correction of metabolic acidosis in Intracellular described for the technique of AFB 84 ‰ may be in involved by influence of the ionized fraction of calcium, which increases with metabolic acidosis is subsequently cause of PTH secretion decline observed during this study.

Table 1 : Evolution of serum calcium and phosphate in the HDB and AFB 84 ‰

	HDB	AFB 84‰	Student Test (p)
Ca <sup>++</sup> T0 (mmol/L)	$2,25 \pm 0,16$	$2,21 \pm 0,26$	0,282 (NS)
Ca <sup>++</sup> T4 (mmol/L)	$2,43 \pm 0,19$	$2,32 \pm 0,25$	0,006 (S)
$\Delta$ Ca <sup>++</sup>	$0,18 \pm 0,22$	$0,11 \pm 0,31$	0,120 (NS)
Po <sub>4</sub> <sup>-</sup> T0 (mmol/L)	$1,71 \pm 0,61$	$1,72 \pm 0,64$	0,859 (NS)
Po <sub>4</sub> <sup>-</sup> T4 (mmol/L)	$0,85 \pm 0,28$	$0,84 \pm 0,22$	0,791 (NS)
$\Delta$ Po <sub>4</sub> <sup>-</sup>	$-0,88 \pm 0,53$	$-0,89 \pm 0,53$	0,813 (NS)

$\Delta$ Ca<sup>++</sup> = Ca<sup>++</sup>T4 - Ca<sup>++</sup>T0 ;  $\Delta$ Po<sub>4</sub><sup>-</sup> = Po<sub>4</sub><sup>-</sup>T4 - Po<sub>4</sub><sup>-</sup>T0

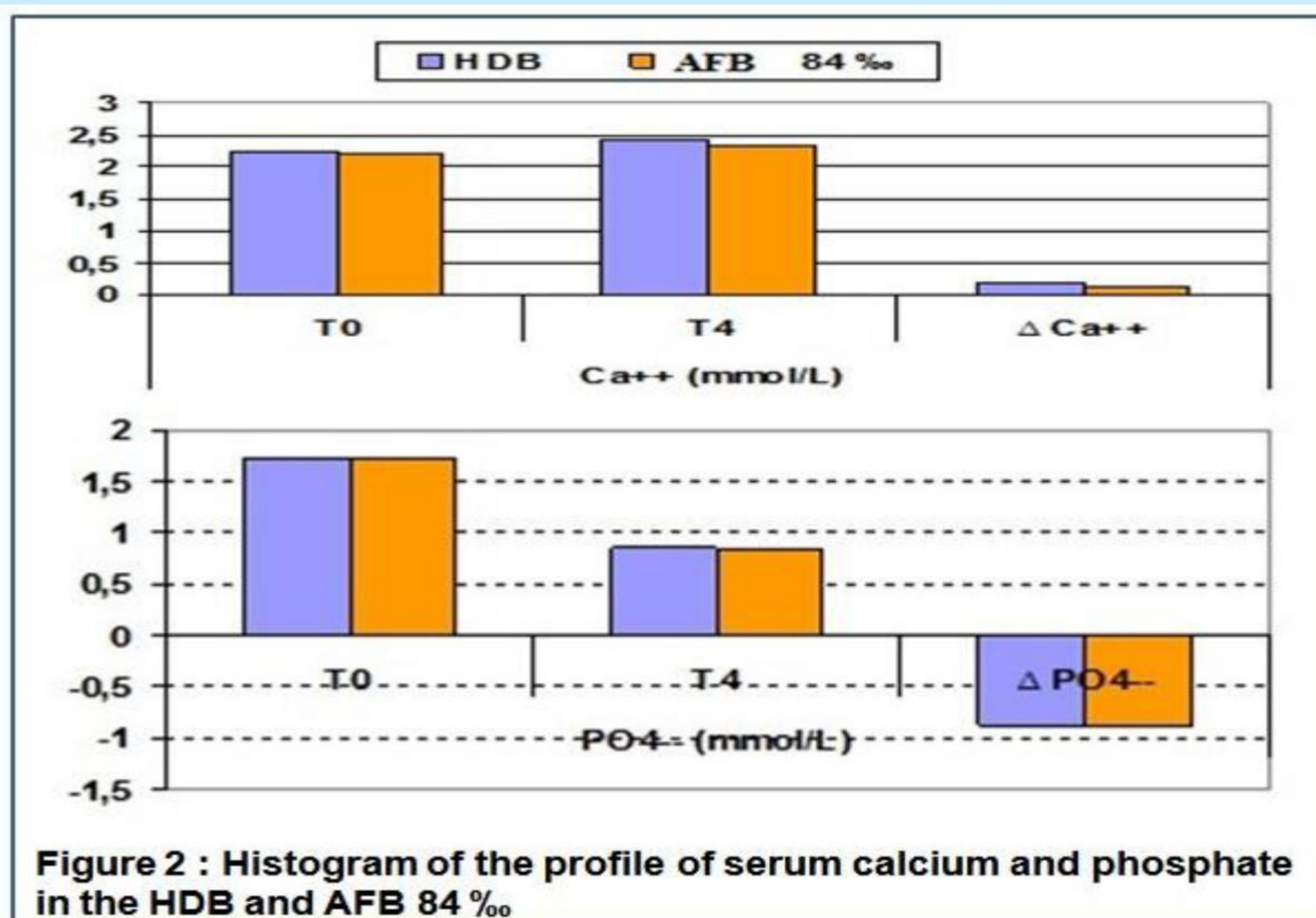


Table 2 : Evolution of PTH in the HDB and AFB 84 ‰

	HDB	AFB 84‰	Student Test (p)
PTH S1 (ng/mL)	$255,63 \pm 213$	$266,43 \pm 231$	0,666 (NS)
PTH S4 (ng/mL)	$279,39 \pm 222$	$236,69 \pm 213$	0,013 (S)
Student Test (p)	0,465 (NS)	0,373 (NS)	-

## CONCLUSIONS

Comparing to the HDB, the AFB to 84 ‰, with its good correction of acid-base balance, allowed for a better stabilization of phosphocalcic ratio and consequently a decrease in the stimulation of parathyroid glands ascertained by decrease significant PTH rate.

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