Zinc, Copper and Magnesium Kinetics during Desferrioxamine Treatment in Uremic Patients

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Dear Sir, H

90-

70-60-

HF

70-

60-50-

(n = 8) (n=8)

HF

Desferrioxamine (DFO) therapy has been proposed for aluminum overload in uremic patients by many authors [1-8]. However, the possibility of interference with the kinetics of other metals merits careful attention and should be studied accurately so as to avoid further trace element disturbances in maintenance dialysis patients. Although iron metabolism is strongly affected by DFO treatment [9-11], no data are yet available on the metabolic behavior of other metals, such as zinc (decreased in dialyzed patients [12], copper (increased in both dialyzed and un-dialyzed patients [13] and magnesium, interesting in light of the possibility that Mg(OH)₂ is substituted for Al(OH)₃ when patients develop aluminum intoxication.

if 160 -1/8 150-8 140-

HD (Π = 6) (n = 9)

4-

1 -

Figure 1 shows the serum zinc, copper and magnesium (atomic absorption spectrophotometry) before and after hemodialysis (HD) and hemofiltration (HF) with and without DFO infusion (3 or 6 g during the first hour of the treatment).

E HF (Π = 3 > (Π = 7)

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•í 1 -

The previously reported [13] significant end-dialysis increase in zinc and copper concentrations was noted also with HF, while no important differences were detected with DFO infusion.

Magnesium, however, decreases at the end of HD and HF, both with and without DFO infusion.

Fig. 1. Zinc, copper and magnesium concentrations in serum (mean values $\pm$ 1 SD) before and after HD and HF with and without DFO infusion during the first hour.

Furthermore, we have never noticed the typical aluminum increase due to tissue mobilization in the period between dialysis when a DFO infusion was used: in fact at the beginning of the dialysis session subsequent to that in which DFO was infused, serum concentrations of zinc,

copper and magnesium had returned to the values recorded before the previous dialysis session.

In conclusion, DFO therapy may be used to remove aluminum and iron in maintenance dialysis patients without any major interferences in zinc, copper and magnesium metabolism.

Moreover, measurements of the dialysis fluids shown in figure 2 demonstrate no important differences attributable to the DFO infusion in the negative zinc balance (more marked during HF) in the negative copper balance in HD (positive in HF), or in the magnesium balance.

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(n = 1 β)

(1-1 = 10)

$\pm$ 1 SD) in dialysis fluids during HD and HF with and without DFO infusion during the first hour. $\square$ = in (dialysate to the patient in HD; bag solutions in HF, same batches); $\blacksquare$ $\approx$ out (total dialysate from the patient in HD; total ultrafiltrate in HF).

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