

# EFFECTS OF DIALYSIS MODALITY ON MYOSTATIN/HGF BALANCE IN REGULAR HD PATIENTS.



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## INTRODUCTION

Patients undergoing haemodialysis (HD) often present malnutrition and wasting syndrome, both correlated with morbidity and mortality. The underlying mechanisms may involve alterations in molecules with systemic and muscular paracrine actions, including Myostatin (Myo) and Hepatocyte Growth Factor (HGF).

Myo, a member of TGF- $\beta$  family, is primarily expressed in skeletal muscle and acts to limit muscle growth. Conversely, HGF, which is overexpressed by immune cells in HD, exerts trophic effects, being essential for the repair of damaged muscle cells and tissue.

Given their apparent contrasting metabolic effects, it is conceivable that Myo/HGF balance may be important in the pathogenesis of muscle wasting in uremic subjects

## PATIENTS AND METHODS

10 regular HD patients ( $65.5 \pm 13.1$  years, 7 male) were enrolled in a 6-month prospective crossover study.

Patients underwent 3-month treatment periods with A) bicarbonate haemodialysis (BHD) followed by B) hemodiafiltration (HDF).

Anthropometric, laboratory and nutritional parameters- including BMI, serum levels of phosphate, albumin, BUN, kt/v, transferrin, lymphocyte count were collected at the beginning of each treatment period.

Myostatin and HGF serum levels were measured by ELISA.  
6 healthy subjects ( $38.1 \pm 12.7$  years, 4 male) were the control group (C).

## RESULTS

Myostatin levels in HD patients were higher than in C, without reaching statistical significance ( $5.9 \pm 4.1$  vs  $3.1 \pm 0.6$  ng/ml,  $p=0.2$ ), whereas HGF was elevated in HD ( $61.7 \pm 10$  pg/ml) and undetectable in C.

In HD, overall Myostatin serum levels inversely correlated with BMI and transferrin ( $r^2$  0.21,  $p=0.03$  and  $r^2$  0.46,  $p=0.007$ , respectively). Conversely, HGF levels were higher in patients with lower HD vintage and resulted positively correlated with BMI ( $r^2$  0.34,  $p=0.006$ ). Interestingly, we found an inverse correlation between Myostatin and HGF levels ( $r^2$  0.2,  $p<0.01$ ). - FIGURE 1A.

During the different treatment periods, there were not significant changes in laboratory and clinical parameters, as well as in HGF levels. Instead, serum Myostatin levels were significantly influenced by the HD modality, resulting significantly decreased after changing from BHD to HDF ( $5.9 \pm 4.2$  vs  $4.6 \pm 3.6$ , respectively;  $p=0.04$ )- FIGURE 1B .

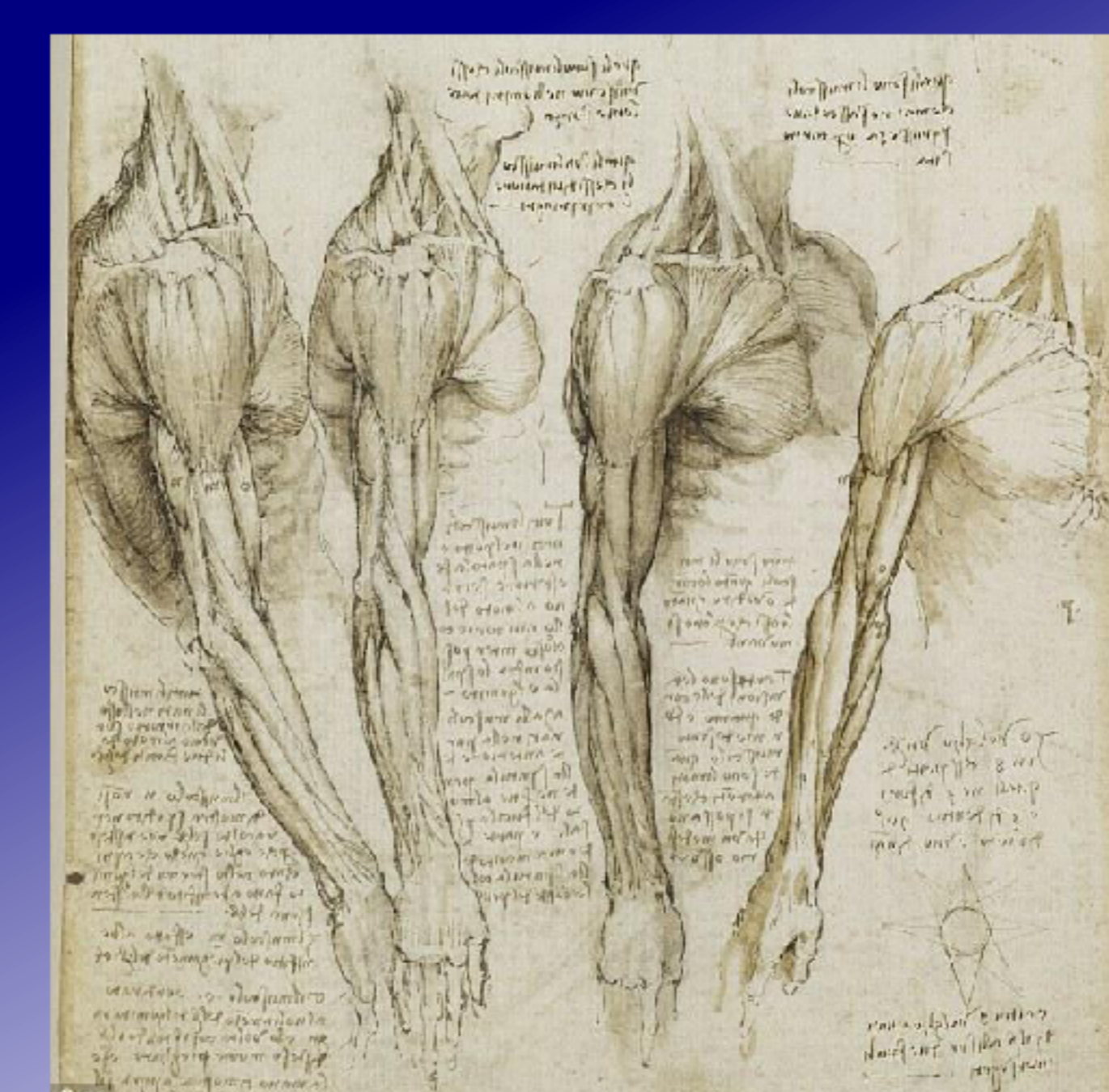
## CONCLUSIONS

In regular HD patients Myostatin and HGF are inversely correlated and seem to have an opposite relationship with nutritional parameters.

The use of different HD modalities, in particular HDF, could impact on malnutrition and wasting syndrome, through the modulation of Myo levels and Myo/HGF balance.

## REFERENCES

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