

# Dialyser categorization state and heparin doses

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## Introduction

Over the last decades, the safety and efficiency of haemodialysis treatment have improved significantly. Despite these achievements, extracorporeal blood circuit (ECC) clot prevention remains a significant challenge in many patients. There are a number of factors favouring ECC coagulation, e. g. heparin dose (IU/kg), low blood flow, high haematocrit, high ultrafiltration rate, treatment modality. According to EBPG, the initial loading dose of heparin should be 50 IU/Kg followed by a maintenance dose of 800-1500 IU/hr in patients without haemorrhagic complications. In post-dilution OL HDF, a very thin balance is achieved by maximizing substitution rate and filtration factor versus anticoagulation dose.

## Objectives

To assess the correlation between:

- ▶ the anticoagulation dose and dialyser status (in categories) and dry weight;
- ▶ dialyser categories and treatment outcomes.

## Methods

We conducted a multi-centre, descriptive-correlational study over one month and enrolled patients according to the specified Inclusion criteria. Nurses received previous training to assess/classify the dialyser's status (divided into five categories) and the venous drip chamber (divided into three categories).



## Results

3.107 patients were enrolled. Mean age was 69.25 (SD=13.74) years and 59.3% were male. The average haematocrit was 33.85 (SD=3.48%) and the mean dry weight 68.27 (SD=13.31 kg) (Table 1).

Mean heparin dose was 58.77 IU/Kg. Only 32.4% of the patients had a clean dialyser at the end of the treatment.

Although the relationship between heparin dose and dialyser category was weak and negative ( $r=-0.322$ ), it was statistically significant ( $p<0.001$ ).

Dialysers classified as "Clean" had an average heparin dose of 66.98 IU/kg.

Patients with higher dry weights had a lower mean heparin dose and had a higher tendency for clotted dialyser fibres.

The relationship between haematocrit, ultrafiltration and dialyser aspect was very weak, however statistically significant.

## Conclusion

Patients with higher dry weight were often treated with lower mean heparin doses. Patients with lower heparin doses showed a higher tendency for clotted dialyser fibres. Patients in the filter category "Clean" presented higher relative heparin doses ( $\approx 67$  IU/Kg) versus those with the filter category "Light pink" ( $\approx 57$  IU/Kg), with repercussions on clinical outcomes.

## References

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Demographic data	Mean/%
Gender male	1841, 59.30%
Age, (years)	69.25 SD=13.74
<b>Clinical characteristics</b>	
Vascular access	
Fistula	2327, 74.9%
Graft	502, 16.2%
CVC	278, 8.9%
Dry weight (Kg)	68.27 SD=13.31
UF Removed (L)	2.54 SD=0.65
Anticoagulation IU/Kg	58.77 SD=19.61
Substitution volume (L)	23.82 SD=2.83
spKt/V	2.03 SD=0.39
<b>Laboratory parameters</b>	
Haematocrit (Vol%)	33.85 SD=3.48

Table 1 – Baseline characteristics of the eligible patients

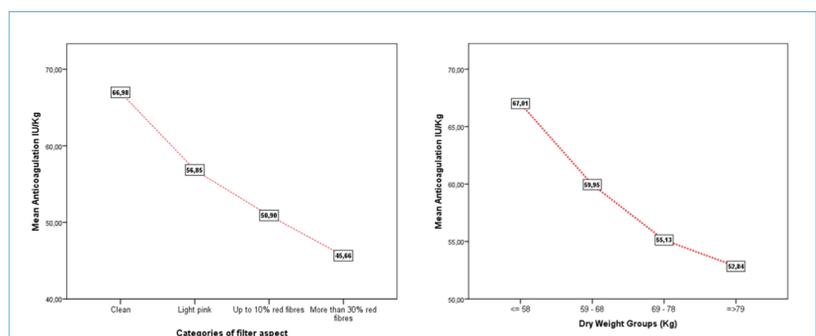


Figure 1– Correlation between mean heparin dose and dialyser categories and dry weight groups

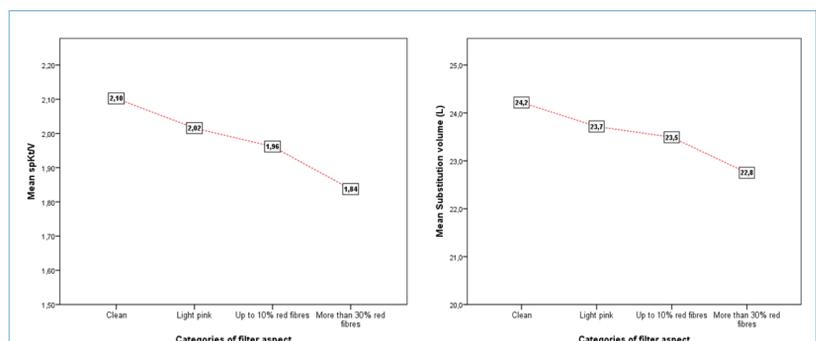


Figure 2 – Treatment outcomes related to filter categories