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Disinfection daily loop heat she brings more and the microbiological quality of water for endotoxin hemodialysis?

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ABSTRACT

Prospective study comparing endotoxin assays, CFU (colony forming unit) to and back from the water loop for hemodialysis and within the dialysate. Before and after the beginning of the nocturnal heat disinfection. The results show that the automated heat disinfection night of the distribution system of water would allow better control of the microbiological quality and endotoxin water for hemodialysis.

Key words: Disinfection daily heat; microbiological quality of water for hemodialysis; inflammation.

INTRODUCTION

The water treatment for hemodialysis is a real challenge for the nephrologist. Several studies highlight the microbiological quality of water for hemodialysis as an independent factor in inflammation and morbidity in chronic hemodialysis motalité.

During the commissioning of a new reverse osmosis, we tried to determine whether the heat disinfection night brings more to the quality of water for hemodialysis.

MATERIALS AND METHOD

Patients and methods

Prospective study conducted in our hemodialysis service. Were compared the endotoxin assays, CFU (colony forming unit) to and back from the water loop for hemodialysis and within the dialysate. Before and after the beginning of the nocturnal heat disinfection (Table).

RESULT AND DISCUSSION

Before heat disinfecting results were respectively for total bacterial count (CFU / ml) and the endotoxin (IU / ml) of [2 CFU / ml, 0010 U / ml] from loop and [6 CFU / ml, 0.07 IU / ml] in loopback. After the start of the heat disinfection nocturnal results were respectively for total bacterial count (CFU / ml) and the endotoxin (IU / ml) of [1 CFU / ml and <0.005 U / ml] from loop

of [2 CFU / ml <0.005 IU / ml] and the return loop of [0 CFU / ml and <0.005 IU / ml] in the dialysate.

Discussion:

The inflammation produced by bacterial contamination of the dialysate appears to be an independent factor. A low concentration of dialysate endotoxin even to make ultrapure (0.1 CFU / mL and 0.03 IU / mL endotoxin) has been suggested in reducing the inflammation and late complications such as malnutrition, the beta2-microglobulin amyloidosis, erythropoietin resistance and the loss of residual renal function (1-2-3).

Thus, the use of the heat disinfection of the nocturnal water distribution loop in our department has to have a better microbiological quality of the dialysate and endotoxin.

	Avant la désinfection chaleur nocturne	Après la désinfection chaleur nocturne
Départ de boucle Germes totaux (UFC/ml)	2	1
Départ de boucle Taux d'endotoxine (UI/ml)	0.010	< 0.005
Retour de boucle Germes totaux (UFC/ml)	6	2
Retour de boucle Taux d'endotoxine (UI/ml)	0.07	<0.005
Dans le dialysat Germes totaux (UFC/ml)	-	0
Dans le dialysat Taux d'endotoxine (UI/ml)	-	< 0.005

Table showing the results of bacteriological samples before and after heat disinfection night

CONCLUSION

These results, although preliminary and need to be confirmed by longer follow-up show that the automated disinfection night heat distribution system of water in our service would allow better

control of the microbiological quality and endotoxin water for hemodialysis .

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