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B) BRIEF INFORMATION ON RESEARCH AND CLINICAL REPORTS

Infection in Haemodialysis Catheters: a Retrospective Examination

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Dear Editor,

Central venous catheter infections are an important cause of morbidity and mortality in patients on haemodialysis. The KDOQI describes an infection frequency of between 3.8 and 6.6 episodes/1,000 days of catheter for non-tunnelled catheters and between 1.6 to 5.5/1,000 days of catheter for tunnelled catheters.¹ The frequency of bacteraemia varies in various studies between 1.6 and 7.7/1,000 days of catheter for non-tunnelled catheters and between 0.2 and 0.5/1,000 days of catheter for tunnelled catheters.²⁻⁶

Our goal was to review the catheter infections in our Haemodialysis Unit. Patients and methods: we examined the catheter infections over a period of six years (1 January 2001 to 31 December 2006). We have implanted 168 catheters, 90 of which were non-tunnelled and 78 tunnelled, in 70 patients. Mean age at the time of catheter implantation was 70 ± 14 years old and the average time on haemodialysis 10 months (1 day-17 years). Approximately 25.7% of the patients suffered from kidney disease of unknown aetiology and 22.8% had diabetic nephropathy. Cephazolin was administered before the

implantation of tunnelled catheters in all the cases.

Results: The tunnelled catheters were left in place for a median time of 4 (0-45) months and the non-tunnelled catheters were left for 1 (1-6) months. Diabetic patients did not experience more infections (32.4 vs. 34.2%; $p = \text{NS}$) or bacteraemia (2.6 vs. 3.8%; $p = \text{NS}$) than the rest of the patients. The incidence of infections was 2.33/1,000 days of catheter for non-tunnelled catheters and 3.10/1,000 days of catheter for tunnelled catheters ($p = \text{NS}$). The most frequent type of infection was that of the exit site both in tunnelled catheters (44/57 [77.2%]) and non-tunnelled catheters (7/9 [77.8%]); $p = \text{NS}$. The incidence of bacteraemia of the non-tunnelled catheters was not greater than that of the tunnelled catheters (0.78/1,000 versus 0.22/1,000 days of catheter; $p = 0.08$). Twenty-one tunnelled catheters (26.9%) were implanted over a guidewire in non-tunnelled catheters but these did not suffer more infections (8/29 versus 13/49, $p = \text{NS}$).

Cephazolin (55.3%) was the empirically-used antibiotic in the majority of the infections.

Staphylococcus was the predominant type, identified in blood cultures in 100% of the cases and in 79.2% of the exit site swabs. The prevalence of Methicillin-resistant species was 60%.

After the microbiological results, the initial antibiotic was changed in 22.7% of the cases ($N = 15$). In almost half of them (46.7%) the antibiotic was switched to Vancomycin.

All patients with sepsis ($N = 9$) were hospitalized. One died of septic shock and the rest recovered fully.

Conclusions: The non-tunnelled catheters were used for one month without any negative impact on the number of infections. In our opinion, they are safe as a temporary access site for patients that are waiting for the construction or maturing of a definitive access.

Due to the high prevalence of Methicillin-resistant species in our centre led to the subsequent inclusion of Vancomycin in our protocol for the management of catheter infections.

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The importance of starting regular haemodialysis through a native arterio-venous fistula

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Dear Editor,

Vascular access is very important in the management of patients beginning Long Term Haemodialysis (LTH) nonetheless, in spite of the advances achieved in many fields, there is a very large number of patients that reach dialysis without proper vascular access.

Recent data demonstrates that, irrespective of the recommendations of guidelines, the use of Arteriovenous Fistulae (AVF) is even decreasing.^{1,2} Therefore, this is a field where much work needs to be done.

In our hospital, we have carried out a retrospective study of all patients that began their LTH program between 1 January 2002, and 31 December 2003. Among other data we recorded the type of vascular access used at the beginning of their dialysis and at the end of the study, the dose of erythropoietin given during the entire

period of the study to each patient (the annual dose was calculated for each one), the number of hospital admissions, in absolute numbers and calculated by total days, and the comorbidity score using the Charlson Co-Morbidity Index,³ calculated for the beginning and the end of the study.

63 patients began LTH during the period of the study. 41 of them (65%) were men. The average age was 60 ± 16 years for men and women. Fifty one percent of the patients were 65 years old or older. The average amount of time in the study was 9.3 ± 6.3 months. Of the 63 patients, 40 completed the study, The reasons for early termination of the study were *exitus* (four patients), transfer to another centre (four patients) and transplant (15 patients). The diabetic patients (19%) were older (66 ± 10 vs. 59 ± 17 years old), more obese (BMI 28 ± 7 vs. 25 ± 3) and they had a higher co-morbidity index than the rest of the patients.

39 patients began dialysis with AVF (62%) and 24 patients with catheters (38%). At the end of the study, 6 patients were using catheters for dialysis. There were no differences in type of vascular access according to

age, in diabetics or non-diabetics or to co-morbidity index. Statistically significant differences were found in the level of albumin, dose of erythropoietin received and in the number of hospital admissions (table 1). The average annual dose of erythropoietin was practically double in those patients that started dialysis with a catheter compared to those that began with an AVF.

There were no differences if the vascular access in the results at the end of the study was considered. Kt/V at the end of the study was similar in the group of patients using catheters or an AVF for dialysis. Seventeen patients (27%) were never hospitalized, 22 (35%) were hospitalized once, and the rest, 24 patients (38%), more than once. Only 8% of those that began with a catheter were never hospitalized.

Having an AVF prior to the commencement of HD is not only associated with better patient-reported quality of life,⁴ but is also linked to lower morbidity and mortality and healthcare expenditure.⁵⁻⁷ Our study confirms the fact that those patients that began LTH with a catheter have a greater number of hospital admissions, longer hospital stay and need higher doses of erythropoietin for similar

Table 1. Patient characteristics according to their first vascular access at the start of haemodialysis

	Catheter	Fistula	p
Age	56 ± 20	63 ± 13	0.188
Diabetics	21%	18%	0.512
Hb 1 (g/dl)	10.3 ± 1.0	10.6 ± 1.6	0.370
Alb 1 (mg/dl)	3.0 ± 0.7	3.6 ± 0.6	0.001
IC _h 1	2.3 ± 1.2	2.6 ± 1.6	0.584
Epo/year	572,314 ± 1,244,220	224,873 ± 144,870	0.009
Days of hospital stay	29 ± 34	18 ± 31	0.031
Admissions	92%	62%	0.022

1==> at the beginning of the study; Hb: Haemoglobin; Alb: Albumin; IC_h: Charlson Co-morbidity Index; Epo: Erythropoietin, expressed in IU. Admissions: % of patients that were hospitalized at some point.

In bold, statistically significant differences