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ORIGINAL

Current practice in continuous renal replacement therapy: An epidemiological multicenter study☆

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KEYWORDS
Renal replacement therapy;
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Abstract
Objective: The aim of the study is to ascertain the most relevant aspects of the current management of renal replacement therapy (RRT) in critically ill patients, and to analyze renal function recovery and mortality in patients undergoing RRT.
Methods: A non-interventional three-month observational study was made in 2012, with a follow-up period of 90 days, in 21 centers in Catalonia (Spain). Demographic information, severity scores and clinical data were obtained, as well as RRT parameters. Inclusion criteria: patients aged ≥16 years admitted to Intensive Care Units (ICUs) and subjected to RRT.

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◊ See list of centres and participants in Annex.

Results: A total of 261 critically ill patients were recruited, of which 35% had renal dysfunction prior to admission. The main reason for starting RRT was oliguria; the most widely used RRT modality was hemodiafiltration; and the median prescribed dose at baseline was 35 mL/kg/h. The median time of RRT onset from ICU admission was one day. The mortality rate at 30 and 90 days was 46% and 54%, respectively, and was associated to greater severity scores and a later onset of RRT. At discharge, 85% of the survivors had recovered renal function.
Conclusions: Current practice in RRT in Catalonia abides with the current clinical practice guidelines. Mortality related to RRT is associated to later onset of such therapy. The renal function recovery rate at hospital discharge was 85% among the patients subjected to RRT.

PALABRAS CLAVE
Terapias de reemplazo renal;
Lesión renal aguda;
Paciente crítico;
Recuperación de la función renal;
Pronóstico

Manejo actual de las terapias continuas de reemplazo renal: Estudio epidemiológico multicéntrico

Resumen
Objetivo: Determinar las características más relevantes del manejo actual de las terapias continuas de reemplazo renal (TRRC), así como analizar la evolución de la función renal y la mortalidad de los pacientes tratados con estas terapias.
Métodos: Estudio observacional sin intervención de 3 meses de duración en 2012 con un periodo de seguimiento de 90 días, realizado en 21 hospitales de Cataluña, en que se registraron escalas de gravedad, datos demográficos, clínicos y de las TRRC. Criterios de inclusión: pacientes de ≥16 años ingresados en cuidados intensivos (UCI) tratados con TRRC.
Resultados: Se seleccionó a 261 pacientes. Un 35% tenía disfunción renal previa al ingreso. El principal motivo para iniciar las TRRC fue la oliguria, la modalidad más empleada fue la hemodiafiltración y la mediana de dosis prescrita al inicio fue de 35 mL/kg/h. La mediana de tiempo de inicio de la TRRC desde el ingreso en UCI fue de un día. La mortalidad a los 30 y 90 días fue de 46 y 54%, respectivamente, y se relacionó con peores valores en las escalas de gravedad y con un inicio más tardío de la TRRC. Al alta hospitalaria, un 85% de los supervivientes había recuperado la función renal.
Conclusiones: El manejo de las TRRC en Cataluña se adecua a los estándares recomendados por las guías actuales. La mortalidad asociada a las TRRC se relaciona con un inicio más tardío. Un 85% de los pacientes tratados con TRRC recuperan la función renal al alta hospitalaria.

Introduction

Acute renal dysfunction is a serious common complication in intensive care units (ICU) associated with the use of continuous renal replacement therapies (CRRT) and reported in 4–10 per cent[1] of the cases. In 2007, one worldwide multicenter epidemiological study[2] revealed that there are various CRRTs in use today, that the most widely used modality is continuous veno-venous hemofiltration (CVVHF, 53 per cent), that the mean dose prescribed was usually 20 mL/kg/h and that the intra-hospital mortality of patients treated with CRRT was around 64 per cent. Likewise, the multivariate analysis of this study showed that none of the variables associated with the therapy (technical modality, material of the membrane, anticoagulation, or dose) had an impact on the patients' mortality. Then, in 2009, another multicenter, observational study[3] carried out among 30 ICUs also found that higher doses do not have an impact on survival and that if any, they may improve the survivors' times of mechanical ventilation and stay at the UCI.

At that time two (2) different survey studies that would be the foundation of what later would become the two (2) best designed-clinical trials about doses and CRRTs were conducted: the VA/NIH Acute Renal Failure Trial Network Study[4] (ATN), published in 2008, and the Renal Replacement Therapy Study Investigators[5] (RENAL) study, published in 2009–both of them ratified that the dose of CRRT does not have an impact on the patients' prognosis. These were the most outstanding findings from those early surveys: the survey[6] that would be the foundation for the ATN study analyzed 26 centers and confirmed that the intermittent renal replacement therapy (IRRT) was the most common (57 per cent) of all renal replacement therapies (RRT) used in ICUs; when the CRRT was used, the most widely used technique was continuous venovenous hemodialysis (CVVH, 70 per cent) and in over 80 per cent of all cases, dose titration was not weight-based. In the survey[7] prior to the RENAL study, 34 centers were studied and these were the findings: the CRTT was the most widely used therapy, and the predilution hemodialfiltration (pre-HDF, 62 per cent) was the most widely technique; dose titration was not weight-based, with an average 2 L/h effluent dose. Closer to our country, in England, one survey[8] conducted among 270 ICUs confirmed that the most widely used technique was hemofiltration (CVVHF, 65 per cent) with