ISSN 1753-0784

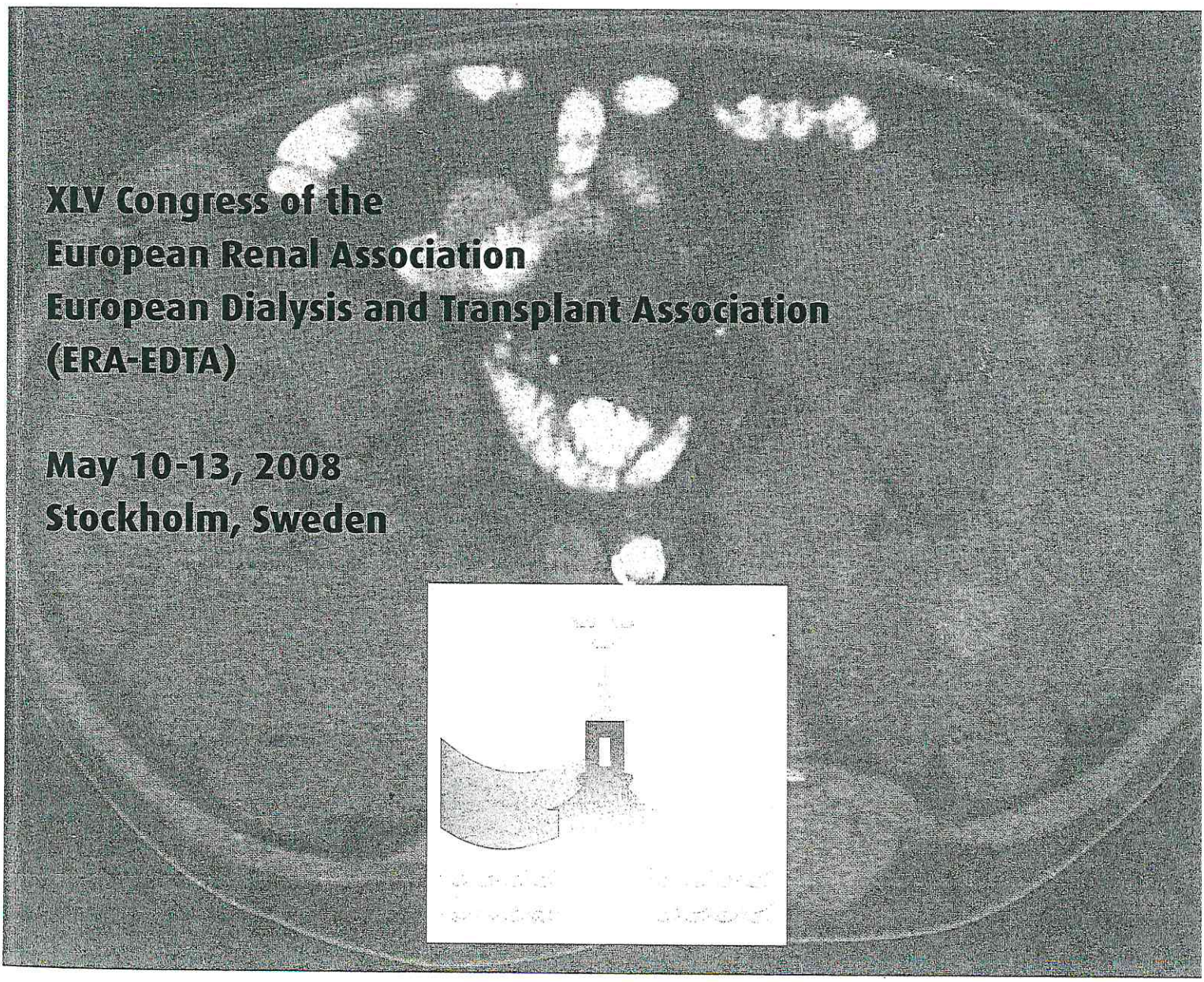
NDT PLUS

Nephrology Dialysis Transplantation

The new official Clinical publication of the European Renal Association – European Dialysis and Transplant Association

Volume 1 Supplement 2
June 2008

www.ndtplus.oxfordjournals.org



OXFORD OPEN

EUROPEAN RENAL ASSOCIATION
EUROPEAN DIALYSIS AND TRANSPLANT ASSOCIATION

OXFORD JOURNALS
OXFORD UNIVERSITY PRESS

SP083 GLOMERULAR HYPERFILTATION AND LOW CREATININE SERUM LEVELS IN ICU: DIAGNOSTIC AND THERAPEUTIC PROBLEMS

Michele Ferrannini[1], Gisella Vischini[1], Clorinda Falcone[2], Emiliano Staffolani[1]. [1]*Nephrology and Dialysis Unit, "Tor Vergata" University, Rome, Italy;* [2]*Nephrology and Dialysis Unit, "Tor Vergata" Hospital, Rome, Italy*

Introduction and Aims: The renal function in critical ill patients plays a key role, expecially for correct dosages of drugs and for prognosis. Serum Creatinine (sCr) levels, creatinine clearance (CrCl) and urine output are used as markers of renal function, despite their limitations are well recognized. These limitations are enhanced in cases of glomerular hyperfiltration. This condition may occur in Intensive Care Unit (ICU) patients mainly when there is hyperdiuresis for prescribed high volumes of colloids, crystalloids and/or diuretics. In these cases sCr levels may be very low and sometimes CrCl very high. These iatrogenic condition makes very hard the determination of real renal function, especially its rapid changes. The aim of this preliminary observational study is to evaluate the range and the number cases of glomerular hyperfiltration in a population of ICU patients, and to compare the sCr and Cys C levels in these patients.

Methods: Were performed 1242 CrCl in 173 consecutive ICU patients. We selected two groups: the first characterized by CrCl between 150 and 199 ml/min, the second characterized by CrCl over 200 ml/min. In these two groups we calculated the percentage of serum Cys C and sCr levels that were in normal range, or lower or higher. The normal range of sCr and CysC were 0.7–1.2 mg/dl and 0.55–0.95 mg/L respectively.

Results: 120 out of 1242 samples (9,66%) were in the first group; in the second group were 77 out of 1242 samples (6,2%). The mean and SD, minimum and maximum values of Cys C, sCr, CrCl and age of the two groups are summarized in table I. In the first group, sCr levels under the normal low range were 104 out of 120 (86.7%) while only 1 for Cys C (0.84%); sCr and Cys C in normal range were 16 (13,33%) and 37 (30.8%) respectively; Cys C over the normal high range were 82 (68.3%) while no high sCr levels were found. In the second group sCr levels under the normal low range were 70 out of 77 (91%) while only 1 for Cys C (0.3%); sCr and Cys C in normal range were 6 (7,8%) and 42 (54.5%) respectively; Cys C over the normal high range were 34 (44.1%) while only one sCr levels were found (0.3%).

Table I: means ± SD, minimum and maximum values of age, Cys C, sCr and CrCl of the two groups

group 1	age (years)	Cys C (mg/L)	sCr (mg/dl)	CrCl (ml/min)
mean ± SD	41±18.9	1.15±0.37	0.49±0.18	171.93±14.82
Min	17	0.45	0.17	150.03
Max	79	2.51	0.94	199.77
group 2				
mean ± SD	48±19.35	1.029±0.34	0.45±0.21	289±95
Min	17	0.5	0.11	201.09
Max	78	2.19	1.51	697.7

Conclusions: From the analysis of these data some questions arise. When in glomerular hyperfiltration there is a rapid doubling of very low sCr levels, are we justified to make diagnosis of ARF? Because of the physiological renal handling of Cys C, can it help us to detect acute renal injury in hyperfiltration patients? but above all, in doubling of normal clearance values, must we double also all the drugs with renal clearance? Further study about hyperfiltration patients need to answer to some of these questions.

SP084 ACUTE RENAL FAILURE ASSOCIATED TO COCAINE CONSUMPTION

Yesika Amezquita, Cristina Galeano, Carlos Quereda, Teresa Tenorio, Fernando Liano, Silvia Caldes, Roberto Marcen, Joaquin Ortuno. *Nephrology, Hospital Ramón y Cajal, Madrid, Spain*

Introduction and Aims: Cocaine consumption rate is high among young people in Spain. So, the percentage of emergency admissions due to acute adverse cocaine reactions was increased in the last years, 26% in 1996 compared with 49% in 2002. Cocaine can produce acute renal failure (ARF) like acute tubular necrosis, renal infarction, cortical necrosis and tubulointerstitial nephritis, and also rhabdomyolysis, hypertension and electrolytic disturbances. The aim of this study was to analyze the cocaine-induced acute renal failure with or without rhabdomyolysis and rhabdomyolysis without ARF admitted into hospital between 1997 and 2007.

Methods: Patient records with the diagnosis of ARF, rhabdomyolysis or cocaine abuse were retrospectively analyzed. Data collection forms included age, sex, admission date, cocaine initiation date, time since last dose, other concomitant drugs abuse, nephrotoxic drugs, urinary cocaine levels, maximum serum creatinine levels, final creatinine levels, sodium excretion fraction, proteinuria, urinary sediment alterations, need of dialysis, hypertension, rhabdomyolysis, maximum creatinphosphokinase, hepatic biochemical alterations, neuropsychiatric alterations and intensive care unit admission.

Results: We found 200 patients with ARF and cocaine abuse history, with an increasing incidence in the last 2 years. The mean age of the patient was 35,4±10.0 years and male predominated 3.3:1. About 75% of them had a history of another concomitant drug abuse, mainly heroin. In 180 patients (90%), kidney damage was not related with cocaine abuse and was associated to several other factors (volume depletion, nephrotoxicity drugs or sepsis). In 20 patients (10%) a relationship were established, 50% of them were diagnosed in last 16 months. ARF with rhabdomyolysis was found in 55% of patients (11/20), ARF without rhabdomyolysis was found in 30% (6/20) and rhabdomyolysis without ARF in 15% (3/20). During follow-up, 3 patients needed hemodialysis but the evolution was satisfactory in all, with restoration of kidney function at baseline level.

Conclusions: Cocaine abuse is a cause of ARF in young people, that had increased in the last years.

Ischemic toxicity, rhabdomyolysis and volume deplection can be the risk factors for kidney damage. The outcome was good and renal function was restored in most cases.

SP085 ACUTE KIDNEY INJURY IN PATIENTS WITH HEMATOLOGIC MALIGNANCIES

Adalbert Schiller[1], Hortensia Ionita[2], Nicu Olariu[1], Ioana Ionita[2], Oana Constantinescu[3], Adelina Mihaescu[1], Despina Calamar[2]. [1]*Nephrology, University of Medicine and Pharmacy, Timisoara, Romania;* [2]*Hematology, University of Medicine and Pharmacy, Timisoara, Romania;* [3]*Nephrology and Dialysis, Emergency Hospital Floreasca, Bucuresti, Romania*

Introduction and Aims: Minor changes in serum creatinine are associated with increased in-patient mortality in severely ill patients. The aim of this pilot prospective study was to investigate the effects of these minor changes in patients with hematologic malignancies and to compare the significance of two AKI defining criteria (RIFLE and The Acute Kidney Injury Network initiative to improve outcome in AKI - AKIN) in these patients.

Methods: 199 patients with hematologic malignancies (109 female, 90 male, mean age 57.86±15.35) have been randomly assigned to this pilot study. The patients presented Hodgkin disease in 12.06% of cases, non-Hodgkin lymphoma in 22.61%, acute leukemia in 7.53%, chronic myeloid leukemia in 11.55%, chronic lymphocytic leukaemia in 20.60%, multiple myeloma in 10.05%, myelodysplastic syndrome in 13.56%, Waldenström macroglobulinemia in 2.01%. Patients have been treated according to hematologic malignancie guidelines.

There have been followed up: general history of the patient, haemoglobin, leucocytes, glycaemia, ASAT/ALAT, ESR, uric acid values, the presence of cardiovascular disease, in-patient mortality. Serum creatinine was determined in each patient at least 3 times (at admission, after 48 hours, after one week). AKI diagnosis was evaluated according to RIFLE criteria and according to The Acute Kidney Injury Network initiative (2007) also. Data have been processed using t-test and the Fisher exact test for two-group comparisons, Pearson prod.-moment for correlations and multiple regression analysis to evaluate influence of biological data on outcome.

Results: AKI was identified in 10.05% of patients with AKIN criteria and in 5.52% when RIFLE criteria have been used (not significant difference p=0.059). The presence of AKI positively correlated with serum creatinine levels at admission (p<0.001), ESR (p=0.002), hepatic enzyme (p=0.031) values and negatively with haemoglobin levels (p<0.001) It was not dependent of hematologic diagnosis, age, sex, leukocyte count, glycaemia or uric acid levels at admission.