Nephrology Dialysis Transplantation 31 (Supplement 1): i60–i62, 2016
doi:10.1093/ndt/gfw143.6

NUTRITION IN CKD AND DIALYSIS

TO006 ANALYSIS OF CREATININE AND ALBUMIN CHANGE DYNAMICS DURING THE FIRST TWO YEARS ON EXTRACORPOREAL DIALYSIS THERAPY

Daniele Marcelli[1], Katharina Brand[1], Fatih Kircelli[2], José Ignacio Merello[3], Pedro Ponce[4], Tomas Jirka[5], Jaroslav Rosenberger[6], Konstantin Gurevich[7], Cristina Marelli[8], Goran Imamovic[9], Attilio Di Benedetto[10], Aileen Grassmann[1], Laura Scatizzi[1], Inga Bayh[1] and Bernard Canaud[11]

[1]Fresenius Medical Care, Clinical and Epidemiological Research, Bad Homburg, GERMANY, [2]Fresenius Medical Care, Medicine and Marketing, Istanbul, TURKEY, [3]Fresenius Medical Care, NephroCare, Madrid, SPAIN, [4]Fresenius Medical Care, NephroCare, Lisboa, PORTUGAL, [5]Fresenius Medical Care, NephroCare, Prague, CZECH REPUBLIC, [6]Fresenius Medical Care, NephroCare, Kosice, SLOVAKIA, [7]Fresenius Medical Care, NephroCare, Saint Petersburg, RUSSIAN FEDERATION, [8]Fresenius Medical Care, Medical Direction, Buenos Aires, ARGENTINA, [9]Fresenius Medical Care, NephroCare, Sarajevo, BOSNIA AND HERZEGOVINA, [10]NephroCare, Headquarters, Napoli, ITALY, [11]Fresenius Medical Care, Center of Excellence Medical, Bad Homburg, GERMANY

Introduction and Aims: Many dialysis patients are affected by protein energy wasting (PEW) already in the initial phase of the renal replacement therapy. Serum albumin and creatinine levels are recognized as predictors of both nutritional status and of mortality risk in hemodialysis (HD) patients. We sought to examine the changes in these nutritional indicators in the 2 years following the first 3 months of HD (defined as baseline), in a phase when residual renal function is not expected to have a significant role.
Methods: The study population was extracted from a database of HD patients treated in 605 NephroCare centers throughout 27 countries between January 2007 and January 2014. Maximum follow-up time was 2 years. A delta-analysis was performed comparing current albumin and creatinine values with their baseline values in 1-month intervals. To analyze differences in the development of these values between certain patient groups, linear mixed models with the correlation structure of an autoregressive process of first order were used that consider the specific structure of the repeated measurements in irregular time interval.
Results: 3860 patients remained in the study after the selection process, 295 (7.6%) of which died during follow-up. In one and two years of follow-up, albumin increased respectively by 0.15 g/dL (or 4%) and 0.14 g/dL (4%), while creatinine increased respectively by 0.8 g/dL (or 12%) and 1.2 g/dL (18%). In comparison to their reference categories, albumin is significant lower for females, patients older/equal than 56, patients with liver disease and patients with low lean tissue index (LTI) or low fat tissue index (FTI) at baseline. Regarding the development of albumin over time, higher post-dialysis fluid overload at baseline is associated with a greater increase of albumin. In comparison to their reference categories, creatinine is significantly higher for males, for patients with high LTI at baseline and for patients with malignancy, whereas creatinine is significant lower for patients older/equal than 56 years, patients with congestive heart failure, peripheral vascular or cerebrovascular disease and diabetes and patients with low LTI or low and high FTI at baseline. Regarding the development of creatinine over time, higher post-dialysis fluid overload at baseline is associated with a greater increase of creatinine.
Conclusions: This study showed that serum albumin and creatinine levels improved in patients treated according to a good dialysis protocol. The presence of post-dialysis fluid overload and certain comorbidities at baseline, such as vascular disease, liver disease and maybe diabetes, can modify the positive trends.