Depression and outcomes of dialysis patients

Sir,
I read with great interest the paper by Chilcot et al. which showed that the presence and severity of depression symptoms following the start of dialysis treatment is an independent predictor of survival. They studied 160 incident dialysis patients, 82.5% of whom were treated by hemodialysis, the remainder by peritoneal dialysis. They were then followed for a maximum of 1027 days but a median of 1.4 years. There were 27 deaths (16.9% of the total population) over the time period. Depression was assessed using a well-established Patient Self-Report Depression Questionnaire designed to assess the severity of depressive symptoms (Beck Depression Inventory-II; BDI) using a Cox proportional hazards model, adjusted for several covariates including albumin and extrarenal comorbidity. The depression score was found to be an independent predictor of mortality. Interestingly, the BDI scores failed to correlate with albumin, and even more interesting, albumin as a covariate did not predict mortality within the whole population although hypoalbuminemia is now a well-established risk for mortality in this population.

I would now like to turn to another study that I and my colleagues carried out in Canada. The study involved 285 patients all on some form of home dialysis. Seventy-eight were on hemodialysis and the rest on some form of peritoneal dialysis mainly chronic ambulatory peritoneal dialysis. As in the Chilcot paper, transplanted patients were censored but there were 37 deaths (15.3% over the period of follow-up). An analysis of factors influencing the survival of these home dialysis patients suggested that psychosocial and demographic factors were just as important as physiological variables in determining outcome. Among the psychosocial variables were included self-reported questionnaires that assessed and numerically scored personality factors such as anxiety, denial, depression, social introversion and self-depreciation. They also scored the stresses related to dialysis procedures. Each variable was compared between survivors and non-survivors and after the initial analysis, two sets of variables were selected for use in discriminant analysis. The first was psychosocial and the second physiological which included frequency of excessive interdialysis weight gain, anemia, blood pressure, creatinine, total protein, albumin, potassium and phosphate levels. Analysis was then carried out to define which of the variables best discriminated between survivors and non-survivors. In the discriminant analysis, each variable was considered individually while the others were controlled. At the end of the study, it was found that age and depression best discriminated between survivors and non-survivors. Excessive interdialysis weight gain, hemoglobin and albumin levels were also found to discriminate between survivors and non-survivors. However, they were less powerful than the non-physiological factors.

The message from the two studies is the same. One minor difference is the fact that in the Canadian study, albumin was shown to be an independent predictor of outcome and this is historically very interesting as I believe that this was the first paper ever to report on the association of low serum albumin and poor outcome. It was over a decade later before this became well recognized. This brings me to the next fact which is to point out that this Canadian study was published nearly 30 years ago in the Lancet [1]. I had forgiven the authors for not including this reference in their current Nephrology, Dialysis, Transplantation paper because of its age; then, I noticed that in their list, there are not only references going back to the 1980’s but others as far back as 1961 and 1948.

This brief look back into the archives does support the contention that the observations of Chilcot et al. will stand the test of time.

Conflict of interest statement. None declared.

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doi: 10.1093/ndt/gfr499

Reply

Sir,
We thank Prof. Lindsay for his letter concerning our recently published study [1]. Prof. Lindsay kindly draws our attention to an interesting paper [2], which was one of the first to consider the impact of psychological factors on survival in dialysis patients.
We wish to respectfully point out that there are many important differences between these two studies. The primary purpose of the study of Wai et al. was to examine factors influencing adaptation to home dialysis. The study cohort, comprised mainly of patients on home haemodialysis (HD), was a highly selected group. Dialysis vintage was not stated, though like most subsequent studies in this area, the focus seemed to be on prevalent patients. In our study, we prospectively evaluated the impact of depression symptoms upon the survival of an unselected cohort of incident dialysis patients, similar in all respects to incident patients in the UK Registry. Both planned and unplanned (crash-landers) initiators were represented and most received centre-based HD. The major demographic and clinical differences between patient cohorts in these studies would reflect in major differences in psychological profile, particularly illness perceptions which are known to be associated with psychosocial and clinical outcomes in dialysis patients [3, 4].

Other methodologies were also different. We deployed the Beck Depression Inventory-II, a standard screening severity tool for depression. The specific methods deployed by Wai et al. are not clear. To determine predictors of survival, we used Cox proportion survival analysis. Wai et al. used discriminant analysis to explore differences between survivors and non-survivors, a technique subject to potential bias since patients cannot be adequately censored at the time of an event.

We undertook the study since it was clearly important to establish whether psychological factors influence short-term survival in a representative incident cohort. Previous studies in this area have suggested a single measurement of depression following dialysis initiation does not predict survival, but effects are apparent when treating depression in a time-varying manner [5].

Prof. Lindsay also points out that we did not find albumin to be an independent predictor of mortality. We did find both comorbidity and albumin to be predictive of survival in univariate survival models. That albumin was not an independent predictor in multivariate analysis is likely to reflect our relatively small sample size, the mix of peritoneal dialysis (PD) and HD patients, and the multi-centred nature of the study with deployment of different albumin assays across centres.

Taken together, we agree that there is established evidence showing the importance of depression as a prognostic factor in dialysis patients. The challenge now is to understand how to best treat depression within this setting and to evaluate interventions in terms of feasibility, psychosocial and clinical outcomes.

We thank Prof. Lindsay for his interest in our article.

Conflict of interest statement. None declared.


doi: 10.1093/ndt/gfr648