The association between BP and mortality in patients on chronic peritoneal dialysis

Sir,

We read with interest the article from Goldfarb-Rumyantzev et al. on the association between a single blood pressure (BP) recording approximately 2 months after the start of chronic peritoneal dialysis (PD) and subsequent mortality during a mean follow-up of 23±14 months [1]. The authors showed that low systolic BP (<111 mmHg) was associated with a higher mortality rate, whereas high systolic BP (up to 220 mmHg) was not associated with an increased mortality risk. Based on these associations, the authors conclude that ‘aggressive treatment of hypertension in the PD population should be cautioned’. In our opinion, this study does not provide the evidence for this conclusion. Although Goldfarb-Rumyantzev et al. present interesting associations, they do not show that treatment of hypertension, either by optimization of the hydration status or by the use of anti-hypertensive drugs is harmful with regard to outcome. Therefore, in our opinion the results of this observational study should primarily be used to generate hypotheses that must first be investigated in properly designed studies before we change our attitude towards hypertension in PD patients.

The association between systolic BP <110 mmHg and increased mortality was found only in certain subgroups: in patients with diabetes, in patients with a history of heart failure, and in patients treated with antihypertensive medications (in 51, 32 and 81% of the study population, respectively). Since the proportion of diabetics in incident dialysis patients is much lower in most European countries in comparison with the USA (e.g. 17% in the Netherlands in 2002), the results of this study may not fully apply to the present European situation. It follows that there probably is no association between low systolic BP and increased mortality in the vast majority of European PD patients. With regard to the use of antihypertensive medications, the authors suggest that systolic BP <110 mmHg resulted from ‘overaggressive treatment of hypertension’. We think that there is a more likely explanation. It is conceivable that patients with severe heart failure (and systolic BP <110 mmHg) were treated with angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers and/or beta-blockers for the indication of heart failure and not because of hypertension. Unfortunately, the authors did not provide information on the classes of antihypertensive drugs that were used nor on the indications for the use of these drugs.

Systolic BP <110 mmHg at 2 months after the start of PD was present in only 57 (5.4%) of the total study population of 1053 patients. It would be interesting to characterize this subgroup in more detail with regard to co-morbidity, nutritional status, smoking status, medication use and the course of blood pressure over time. Notably, the authors did not include smoking status as a covariate in their model. Smoking may be a stronger risk factor and compete with hypertension in causing mortality [2].

By stating that ‘high BP does not have any negative implications for survival’ the authors imply that high BP in PD patients may be favourable with regard to outcome. In this study, however, it is difficult to interpret the exact nature of the association between high BP and outcome. The authors used a single BP recording at approximately 2 months after the start of PD and we are not informed on the course of BP during follow-up. One of the most prevalent causes of hypertension in PD patients is fluid overload. We are not informed on the hydration status of the study population. An additional argument to be cautious with hypertension is that Goldfarb-Rumyantzev et al. demonstrated that diastolic BP >110 mmHg tended to be associated with a higher mortality rate ($P = 0.09$). Finally, the use of anti-hypertensive drugs may confer an independent protective effect on mortality in dialysis patients [2,3]. Previously, the survival advantage of high blood pressure was only found in haemodialysis patients who were taking anti-hypertensive medication [4]. Likewise, it is possible that hypertension did increase mortality in the study of Goldfarb-Rumyantzev et al., while the negative impact on survival was balanced by a protective effect of antihypertensive medication.

In conclusion, this study again shows that the relationship between BP and outcome in dialysis patients is extremely complex. At present, the optimal BP goal in PD (and haemodialysis) patients is unknown [2]. In our opinion, this issue can only be solved by prospective randomized studies on the effect of both pharmacological and non-pharmacological (e.g. optimization of fluid status) treatment of hypertension in well-defined groups of dialysis patients.

Conflict of interest statement. None declared.

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