

Blood Pressure and Survival in Long-Term Hemodialysis Patients with and without Polycystic Kidney Disease

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INTRODUCTION

- The blood pressure (BP) targets to be achieved by means of antihypertensive therapy or other interventions in maintenance hemodialysis (MHD) patients are recommended by the Kidney Disease Outcomes Quality Initiative (KDOQI) to be less than 140/90 mmHg pre-hemodialysis and less than 130/80 mmHg post-hemodialysis.
- In maintenance hemodialysis patients, low BP is associated with a higher mortality rate when compared to normal to moderately high values.
- This hypertension paradox may be related to comorbid conditions.
- Dialysis patients with polycystic kidney disease (PKD) usually have a low comorbidity burden and improved survival rates.
- We hypothesized that in PKD dialysis patients, who are representative of a healthier dialysis patient population, that high BP is associated with higher mortality.

METHODS & RESULTS

- Time-dependent survival models including after multivariate adjustment were examined to assess the association between pre- and post-hemodialysis BP and all-cause mortality in a 5-year cohort of 67,085 non-PKD and 1,579 PKD hemodialysis patients.
- In PKD patients low pre- and post-hemodialysis systolic BPs were associated with increased mortality, whereas high pre-hemodialysis diastolic BP was associated with greater survival.
- Fully adjusted death hazard ratios (and 95% confidence levels) for pre- and post-hemodialysis BP of <120 (reference: 140-<160 mmHg) were 1.30 (1.06-1.92) (Figure 1) and 1.45 (1.04-2.02) (Figure 2), respectively.
- For pre-hemodialysis, diastolic BP of ≥ 80 (reference: 70-<80 mmHg) was 0.68 (0.49-0.93, all p-values <0.05).
- Similar associations were observed in non-PKD patients. In pooled analyses, within each commensurate BP stratum, PKD patients exhibited superior survival to non-PKD patients.

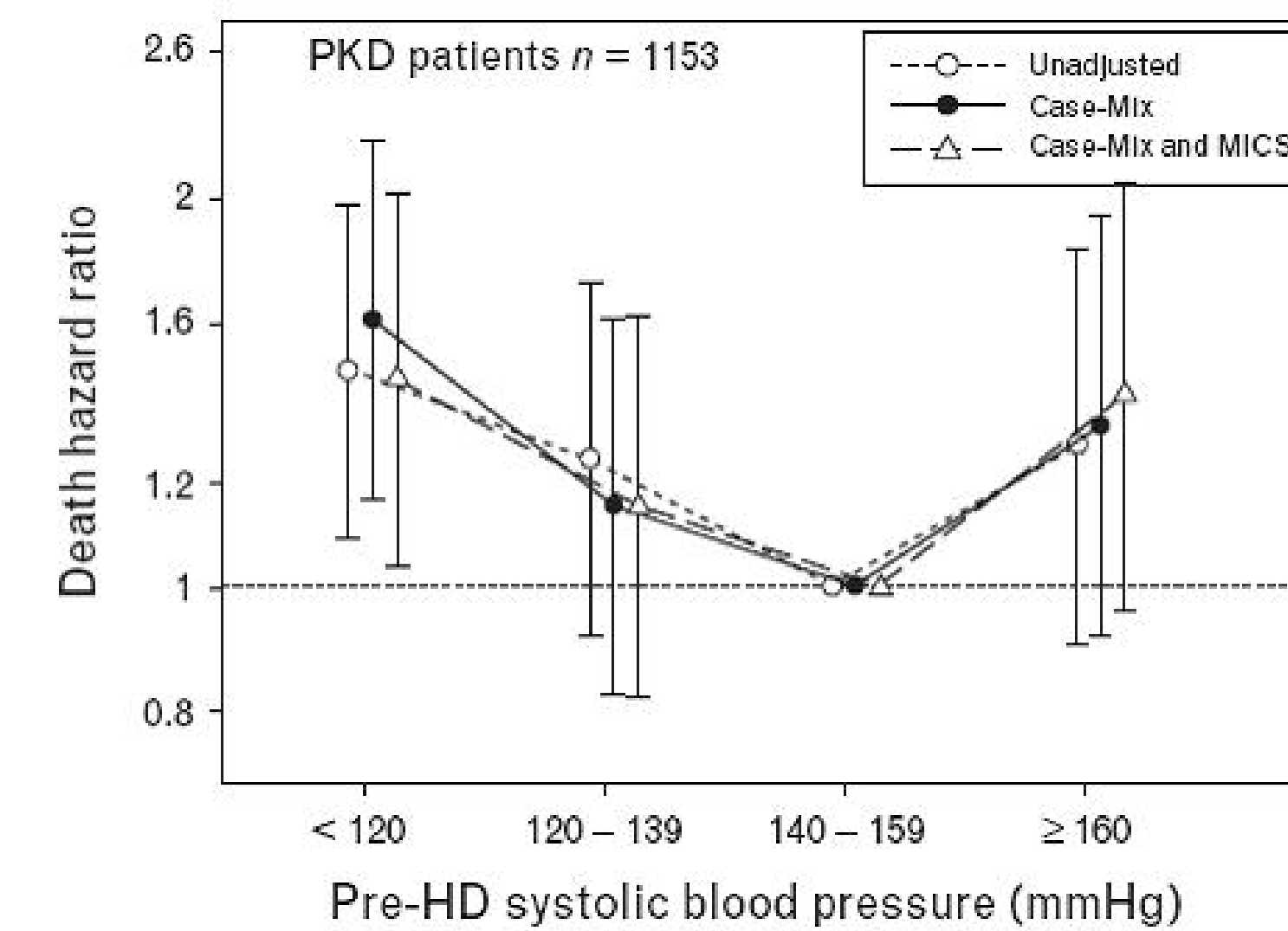
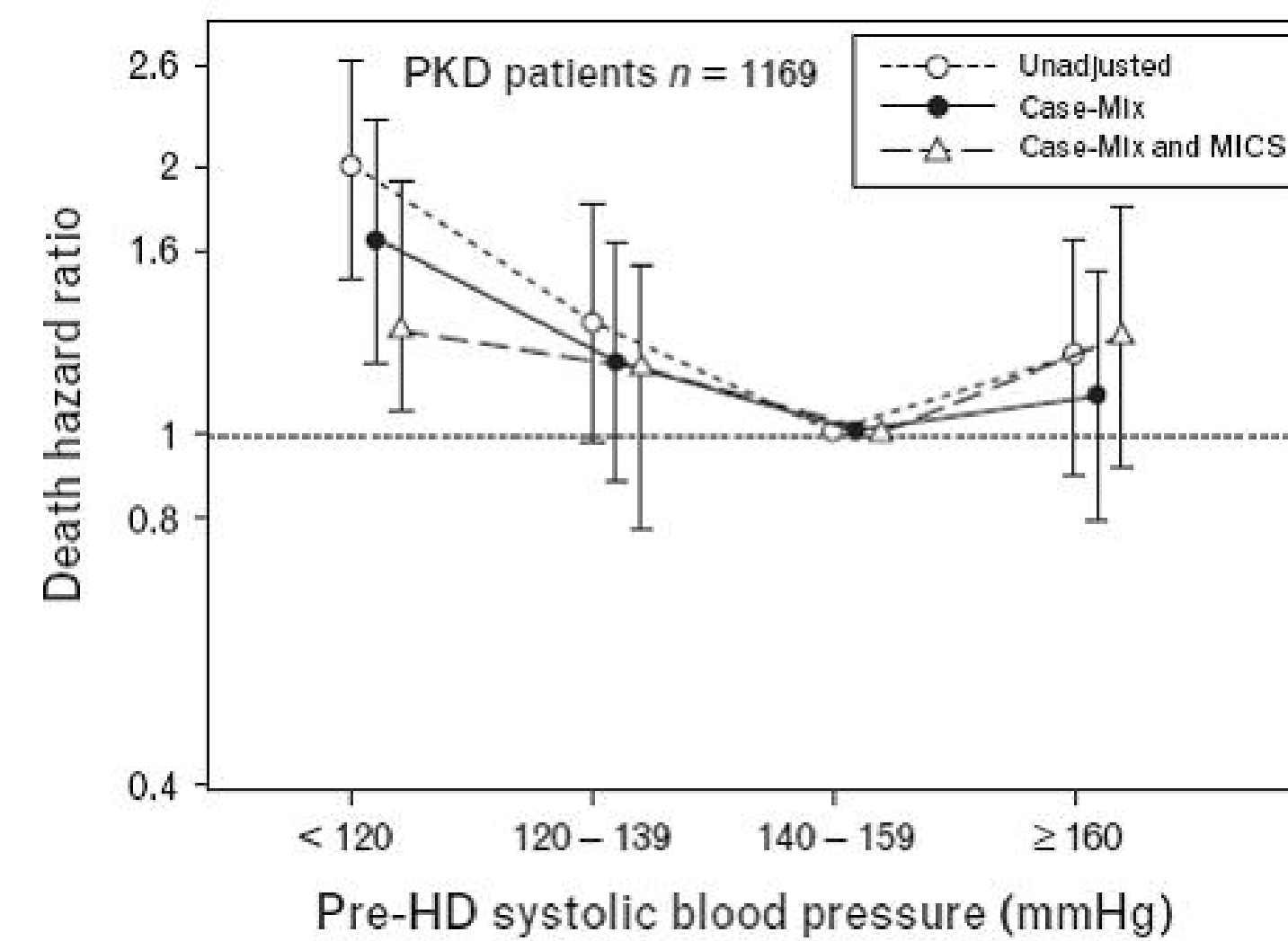


Figure 1-2. Association between time-dependent pre- and post-dialysis SBP and 5-year all-cause mortality in maintenance hemodialysis patients with polycystic kidney disease

Source: Manuscript: Molnar MZ, Lukowsky L et al., Journal of Hypertension, 2010: in press

CONCLUSIONS

- Among hemodialysis patients, those with PKD displayed a similar BP paradox compared to those without PKD, even though for each BP category the PKD patients maintained superior survival.

KEY LEARNINGS

- ✓ In maintenance hemodialysis patients, with or without PKD, a low BP value appeared more strongly associated with poor outcomes.
- ✓ There are subtle differences in the association between BP and mortality in both PKD and non-PKD patients suggesting that therapeutic regimens should be individualized.
- ✓ Clinical trials are needed to clarify the optimal BP targets for the different MHD patient subgroups.

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