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Correction of Anemia with Erythropoietin during the Two-Year Pre-ESRD Period: Post-ESRD Mortality

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We previously reported patients(pts) with frequent pre-ESRD EPO treatment had higher hematocrit and albumin levels at initiation. We hypothesized that these findings would predict lower risks of ESRD mortality. Methods: We evaluated 1995-97 incident Medicare hemodialysis pts age 67+ years with 2 years of pre-ESRD claims categorized into five groups: EPO none (0), <25 (I), 25-<50 (II), 50-<75 (III), and 75+% (IV) of possible months, which were counted from the first EPO treatment month to the first ESRD service date. All-cause crude death rates in the ESRD period were determined at 90 days, 6 months, and 1 year, stratified by EPO group. Adjusted risk of death was assessed using a Cox regression model, adjusted for incidence year, race, gender, age, diabetic status, and pre-ESRD EPO group (reference: EPO Group IV). Results: Relative risk of death was lowest ($P < 0.0001$) for pts who received pre-ESRD EPO. Relative risks of death were 1.853 (1.653-2.077, 95% CL, $P < 0.0001$), 1.515 (1.318-1.740, $P < 0.0001$), 1.360 (1.149-1.611, $P = 0.0004$), and 0.983 (0.809-1.194, $P = 0.98$) at 90 days for EPO 0, I, II, and III, respectively compared to group IV. At 6 months, risk ratios were 1.753 (1.614-1.903, $P < 0.0001$) for EPO 0, 1.483 (1.341-1.640, $P < 0.0001$) for EPO I, 1.227 (1.082-1.391, $P < 0.002$) for EPO II, and 1.040 (0.907-1.193, $P > 0.6$) for EPO III. At 1 year post-ESRD, risk ratios were similar to those at 6 months. The table below presents post-ESRD crude death rates (%) by pre-ESRD EPO group.

| EPO status | 0 | I | II | III | IV |
|------------|------|------|------|------|------|
| 90 days | 13.0 | 11.0 | 10.0 | 7.4 | 7.4 |
| 6 months | 23.2 | 20.5 | 17.2 | 15.0 | 14.3 |
| 1 year | 36.2 | 32.4 | 29.4 | 27.1 | 26.1 |

Conclusions: Pts who received more consistent pre-ESRD EPO had reduced mortality risk within one year of ESRD compared to no or less frequent EPO. These findings may reflect more consistent care in the pre-ESRD period.