Erythropoiesis-stimulating agents and thrombotic events in dialysis patients.

Erythropoiesis-stimulating agents (ESA) have been associated with a higher cardiovascular event and mortality rate in dialysis patients. The ESA-associated risk of arterial thrombotic events is mainly based on composite endpoints of anemia-correction trials targeting high hemoglobin levels. The ESA-associated risk of venous thromboembolism (VTE) has not been studied in dialysis patients yet. We therefore aimed to determine the association between ESA use and dose with ischemic stroke, myocardial infarction (MI) and VTE. In NECOSAD, a Dutch cohort study of incident dialysis patients, data on ESA use and dose, comorbidities and laboratory parameters were routinely collected every 6 months. Thrombotic events were collected by chart review of all dialysis patients from 6 participating centers. Time-dependent Cox regression analysis was performed to calculate hazard ratios (HR) with 95% confidence interval (CI) for ischemic stroke, MI and VTE with updated information on ESA use and dose. Patients with ESA had a 2 times lower ischemic stroke rate than patients without ESA: adjusted HR 0.45 (95% CI 0.23-0.90), and an adjusted HR of 1.12 (95% CI 0.58-2.14) for MI. No evident ESA dose response effect was present. Unadjusted HR for VTE was 0.41 (95% CI 0.11-1.50) for patients with ESA compared to patients without, but
the low event rate made further adjustments impossible. In our observational cohort of dialysis patients, reflecting everyday clinical practice, ESA was not associated with an excess of thrombotic events. Further investigation is needed to enlighten the true cause of ESA-associated cardiovascular events and mortality.

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