ROLE OF RENIN ANGIOTENSIN SYSTEM (RAS) IN ANEMIA RELATED TO CHRONIC KIDNEY DISEASE (CKD)

Aniruddha Palya, Fazle Noor, Frederick Fleszler, Simi Shahabdeen, Racquel David, Niyati Modi, Sachin Shrestha, Zecharias Berhane, Ajay Kumar, Dae Hwan Kim, Bette Seamonds

The purpose of our retrospective study was primarily to assess the role of RAS blockade in patients with anemia of CKD.

We included 170 Diabetes (DM) and 170 non-DM patients after reviewing 1500 charts. Information on demographics, Medical history, meds and Lab data was obtained. Anemia was defined as hemoglobin (Hgb) less than 12gm/dl in females and 13gm/dl in males (WHO). Anemia was classified as Iron def, Anemia of Chronic disease (AOCD) and Indeterminate types based on Iron, Transferrin saturation and ferritin. Patients were grouped based on eGFR calculated by MDRD. More patients in the Diabetes category were on RAS blockade. The primary statistical analysis was multi-way ANOVA.

In an unadjusted model, RAS blockade with ACEI & ARBs was associated with lower epo levels in DM compared to non DM patients (*p-value<0.001*). A decrease in GFR was associated with decrease in Epo levels (*p-value <0.001*). The Epo levels were lower in DM compared to non-DM patients across each category of decreasing GFR (*p<0.001*).

On adjusting for confounders, DM patients had lower epo levels compared to Non-DM patients (*p=0.011*) at all levels of GFR (*p=0.005*). Increasing age was associated with lower epo levels (*p-value <0.001*). RAS blockade was associated with lower epo levels (*p-value 0.002*). Patients with AOCD tended to have lower epo levels (*p-value 0.048*). VitB12 levels (*< 230 pg/ml*) had a negative association with epo levels (*p-value=0.002*). The epo levels tended to increase with decrease in the Hgb levels, but the association was not significant (*p=0.142*)

Diabetes Mellitus is associated with lower levels of erythropoietin compared to non-DM patients at all GFR levels. RAS blockade and increasing age in conjunction with DM may play a significant role in Anemia.