Objective(s): The vast majority of patients undergoing hemodialysis (HD) are anemic. The severity of anemia in these patients may influence the postoperative outcomes and the durability of vascular access. Thus, the purpose of this study is to assess the role of anemia in patients undergoing HD access placement [arteriovenous grafts (AVG) and fistula (AVF)].

Methods:
All patients from 2011 to 2017 with chronic kidney disease stage (CKD) 4 and 5 in the VQI-Hemodialysis database were included and divided into normal/mild (Hgb: Females>10 g/dL, Males>12 g/dL), Moderate (Hgb: Females: 7-9.9 g/dL, Males: 9-11.9 g/dL) and severe (Hgb: Females<7 g/dL, Males<9 g/dL) anemia. Multivariate logistic and cox-regression analysis were implemented to evaluate 30-day mortality and primary patency (PP) at 1 year, respectively.

Results:
A total of 28,013 patients undergoing HD access surgery were identified [normal/mild (22%), moderate (69%) and severe (9%) anemia]. Postoperative bleeding (2.2% vs. 1.9% vs. 2.2%) and 30-day outcomes including swelling (0.7% vs. 0.4% vs. 0.5%) and wound infection (0.1% vs.
0.3% vs. 0.3%) were similar in mild/normal, moderate and severe anemia groups, respectively (All \( P>0.05 \)). However, 30-day mortality was significantly higher in patients with severe anemia compared to normal/mild and moderate anemia (2.1% vs. 1.0% and 1.1%, respectively, \( P<0.001 \)). After adjusting for potential confounders, compared to normal/mild, severe anemia was associated with 68% higher risk of 30-day mortality [OR(95%CI): 1.68(1.03-2.76), \( P=0.04 \)] (figure). No difference was seen between normal/mild and moderate anemia [OR(95%CI): 0.81(0.56-1.17), \( P=0.26 \)]. PP at 1 year was similar between the three groups (51% vs. 50% vs. 50%, \( P=0.45 \)). However, compared to normal/mild anemia, multivariate cox regression demonstrated 16% increase risk of loss of PP with severe anemia [aHR(95%CI): 1.16(0.99-1.25), \( P=0.03 \)] but similar PP in moderate anemia [aHR(95%CI): 1.05(0.98-1.14), \( P=0.18 \)].

**Conclusions:**
In this large study of HD patients undergoing HD access placement, compared to normal/mild anemia, severe anemia was associated 16% increased risk of loss of primary patency and 68% increased risk of 30-day mortality. No difference was seen in mortality or PP between normal/mild and moderate anemia. We strongly recommend correction of severe anemia to moderate level prior to access placement.

**Figure.** Logistic regression analysis of 30-day mortality in hemodialysis patients with normal/mild versus moderate versus severe anemia.

**Author Disclosure Block:**

S.S. Locham: None. A. Mathlouthi: None. B. Nejim: None. H. Dakour Aridi: None. A. Bhavana Challa: None. M. Malas: None.