A multivariable analysis of psychosocial risk factors in pediatric renal transplant patients

Background: The Pediatric Transplant Rating Instrument (P-TRI) is a validated 17-item rating scale administered during pediatric pre-transplant evaluations to identify developmental, familial, and logistical barriers that may impact transplant success. This study evaluates the relationship between medical diagnostic factors and patient psychosocial risk factors as measured by the P-TRI.

Methods: Retrospective chart review of 177 pediatric kidney transplant candidates evaluated at Children’s Hospital Colorado between 2013 and 2021 was performed. Candidates were grouped into one of three diagnostic categories: CAKUT, primary renal, or syndromic neurogenic bladder. Differences in adherence and total risk were analyzed using cumulative logistic regression, with higher P-TRI totals and adherence subscale scores indicating less risk. The P-TRI and adherence scales were assessed for association with diagnostic category, catheterization and dialysis status. At risk status for transplant knowledge and psychiatric history were assessed for association with diagnostic category using binary logistic regression. The model for at risk status for transplant knowledge was further corrected for language, ethnicity, and insurance type. Analyses were conducted using SAS v.9.4 (Cary, NC).

Results: Patients who catheterize had lower adherence scores than patients who did not catheterized (OR 0.46, p=0.0206). Patients on dialysis trended towards higher adherence scores compared to those not on dialysis (OR 1.69, p=0.067). Each additional year of life was strongly associated with lower adherence scores (p=0.0011). Primary renal patients were more at risk for psychiatric concerns compared to CAKUT patients (OR 1.96; CI=1.06-3.66; p=0.046). Multivariable analysis was performed to compare language, ethnicity, and insurance type as risk factors in the “Knowledge About Transplant” category. There was moderate evidence indicating that Hispanic non-English speaking patients were more likely to score as “at risk” compared to non-Hispanic English-speaking patients (OR 3.4; p=0.03). There was moderate evidence that patients with public insurance were more likely to be at risk in this category compared to patients with private insurance (OR 3.8; p=0.011).

Conclusions: This study found that patients who catheterize, are not on dialysis, or are older in age are at increased risk of non-adherence and may benefit from additional support. Primary renal versus CAKUT diagnoses had more psychiatric risk factors which suggests a need for early psychiatric support in the renal setting. Finally, Hispanic non-English speaking patients and patients with public insurance may be more at risk of not having necessary knowledge about the transplant and additional educational supports may be beneficial.