MYELOPROLIFERATIVE NEOPLASM POST RENAL TRANSPLANT A SINGLE CENTER REVIEW

Nithin Thomas MD, Binoy Yohannan MD, Arthi Sridhar MD, Adan Rios MD
McGovern Medical School at UT Health Houston, TX, USA

Background

Context: Myeloproliferative neoplasm (MPN) post renal transplant (RT) is a rare disease. There are limited data on the clinicopathological features and outcomes of patients with post-RT MPN.

Objective: The main objective of this study was to analyze the clinical outcome of MPN post RT.

Materials & Methods

Design: This was a single-center retrospective study.

Setting: Patients who had post-RT MPN at Memorial Herman Hospital, Texas Medical Center.

Patients: We reviewed 1,998 patients who underwent RT between January 1, 1999, and December 31, 2019. Three cases of post-RT MPN were identified.

Main Outcome Measures: We analyzed the incidence, interval between RT and MPN diagnosis, MPN treatment, and clinical outcomes of patients with post-RT MPN.

Results

Table 1: Patient characteristics

NUMBER OF RENAL TRANSPLANT PATIENTS REVIEWED	1998
NUMBER OF PATIENTS WITH MPN	N= 3
GENDER	ALL FEMALE
MEAN AGE	53
RACE	AFRICAN AMERICANS N=2 CAUCASIANS N=1
TYPE OF TRANSPLANT	RENAL TRANSPLANT N=2 RENAL AND PANCREAS TRANSPLANT N =1
TYPE OF MPN	CML N=2 PV N=1
MEAN INTERVAL BETWEEN RT AND MPN DIAGNOSIS	9 YEARS
MEDIAN FOLLOW UP	42 MONTHS

All 3 patients were on tacrolimus, mycophenolate, and prednisone for post-transplant immunosuppression.

Table 2

MPN TYPE	CYTOGENETIC ABNORMALITY
POLYCYTHEMIA VERA N= 1	JAK-2 MUTATION
CHRONIC MYELOID LEUKEMIA N =2	BCR-ABL TRANSLOCATION

Table 3

MPN TYPE	TREATMENT
CML PATIENT 1	IMATINIB
CML PATIENT 2	DASATINIB
PV PATIENT	HYDROXYUREA, ASPIRIN

CML patients who received tyrosine kinase inhibitors have major molecular response.

PV patient on Hydroxyurea and Aspirin have excellent Hematocrit control.

One patient developed immune-related hemolytic anemia and thrombocytopenia, which was successfully treated with glucocorticoids.

All three patients still have preserved allograft function and are alive at a median follow-up of 42 months.

Discussion

While the risks for developing malignancies, such as lymphoproliferative disorders are significantly increased in solid organ transplant recipients, MPN following solid organ transplantation are relatively infrequent.

Development of MPN may be accelerated by the transplantation itself or by immunosuppressive medications used to promote graft tolerance.

Conclusion

*Myeloproliferative Neoplasm post renal transplant is rare.
*Standard-of-care therapies for MPN are well tolerated.
*Patients who developed CML and PV had major molecular response and excellent hematocrit control on treatment.
*Further studies are required to explore the pathophysiology and outcomes of MPN in RT recipients.

References

Wu B, Ingersoll K, Jug R, et al. Myeloid Neoplasms Following Solid Organ Transplantation: Clinicopathologic Studies of 23 Cases. *Am J Clin Pathol*. 2017;149(1):55-66. doi:10.1093/ajcp/aqx133