CATEGORY 1
FINANCIAL OPERATIONS

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Award Category:
Finance Operations

Title:
Protocol Innovation – Renal Transplantation in Patients with AHUS

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Problem/Situation: Gaining a competitive advantage in healthcare requires a deliberate focus on delivering the highest quality of patient care services as well as the most advanced technology, as measured by clinical outcomes, patient satisfaction and cost effectiveness. Our challenge was to develop an effective infrastructure that would allow our program to safely perform kidney transplants in patients with AHUS, while minimizing expenses and potential financial loss.

A 36-year-old Caucasian man with end-stage renal disease (ESRD) due to atypical hemolytic uremic syndrome (HUS) presenting for transplant evaluation. Patient's mother is a carrier for HUS, one sibling expired due to complications of HUS and another sibling has confirmed HUS and ESRD. Patient was initially diagnosed at 1 year old, he and treated with plasmapheresis but progressed to ESRD and began hemodialysis in 2001. In 2011 and 2012, patient sought an evaluation for kidney transplant and underwent genetic testing revealing two polymorphisms in CFH (complement factor H) gene and a heterozygous mutation in the THBD (thrombomodulin) gene. Patient was educated for high risk of recurrence of atypical HUS post transplant which could lead to allograft dysfunction and/or loss and that CFH mutations have poorer outcomes.1

Patient was lost to follow up but returned in January 2020 and re-evaluated. Patient was educated about possible treatment with eculizumab and would require this treatment prior to transplant as well as post-transplant. Patient sought hematology consult and began eculizumab therapy every two weeks. Transplant insurance review confirmed that costs for inpatient dosing of eculizumab would be included in transplant rate and each dose would add approximately $26,000-$50,000 of direct expense to patient's admission and that costs incurred would depend on coordination of admission with infusion dates. Patient did not have a living donor and was seeking listing for a deceased donor. With the unpredictability of deceased donor offers, as well as length of stay, our program would be subject to substantial risk for significantly increased costs related to the transplant episode of an HUS patient undergoing biweekly eculizumab treatments.

Methods/Practices/Interventions Further consult with transplant physicians suggested conversion of patient to ravulizumab, which would require infusions every 8 weeks, instead of every 2 weeks. Hematologist agreeable to the conversion of patient to new agent and maintenance treatments scheduled every 8 weeks. While it was unlikely that the patient would require a dose while inpatient, our team presented to senior leadership for approval. Even with cost recovery via the Medicare Cost Report, there would be in increase in cost and bottom line impact.

Transplant physicians and hematologist agreed to actively list patient for a deceased donor transplant and team educated on timing of kidney offer acceptance and last infusion. Team concluded that patient could receive a kidney transplant within 4 weeks of his last dose of ravulizumab and alerts set up in on-call system.

Findings/Solutions/Conclusions: Patient received infusion on 9/29/20 was listed on 10/7/20, was transplanted on 10/13/20 and was discharged on 10/23/20. Patient had stable creatinine at time of discharge and no transplant-related re-admissions to date. Transplant hospital did not incur any additional costs related to patient's treatment of HUS during transplant stay.

With this new formalized protocol, we have another actively listed HUS patient on the deceased donor list and another patient in the evaluation stage.

Data tracking and monitoring will continue.

A systematic and multi-disciplinary approach is required for efficacy, efficiency and effectiveness. This case necessitated an in-depth analysis of many transplant elements including protocol reviews, evaluation and listing strategies, provider communications and insurance review and clearance as well as billing practices. This coordination not only resulted in a new protocol, which would allow HUS patients the opportunity for transplant, but also avoided costs and demonstrated fiscal responsibility.

Implications/Relevance: Our team balanced our drive to deliver safe and quality patient care with the ever-increasing focus on cost control and reimbursement, by proactively researching novel treatment options and assessing the clinical and financial aspects of transplantation. Future enhancements include contract negotiations with commercial payors for per dose reimbursement, if required, for patient care during the transplant episode. This new protocol and workflow created an effective treatment model and infrastructure that allows our program to safely perform kidney transplants in patients with AHUS, while minimizing expenses, significant cost avoidance and potential financial loss.

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References:

1- J Am Soc Nephrol. 2013 Feb 28; 24(3): 475–486.

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Combined Complement Gene Mutations in Atypical Hemolytic Uremic Syndrome Influence Clinical Phenotype

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