ASTS
American Society of Transplant Surgeons

Example MOC Questions

1. You are the transplant surgeon evaluating a 15 month old infant with biliary atresia who underwent a Kasai portoenterostomy at 6 weeks of age with normalization of bilirubin levels by 12 weeks of age. Unfortunately, he has become jaundiced again over the past several months with a total bilirubin that has steadily risen to >10 despite aggressive antibiotic treatment for cholangitis. US does not reveal any vascular issues or bile lakes but does demonstrate the development of moderate ascites. He weighs only 8 kg and is receiving supplemental feeds via NGT. His abdomen is distended with visible abdominal wall varices and a firm enlarged liver and spleen are both easily palpable floating in the ascites. The INR has risen to 1.6 despite vitamin K and the albumin is 2.5. You are counseling the parents on technical options for liver transplantation and find out that no living donor options are available. Which of the following options would be an appropriate recommendation for the family at this time?
    a. List only for whole organ transplantation as there is no shortage of whole organs available for infants and the waitlist mortality for this group of patients is relatively low.
    b. List only for whole organ transplantation because the outcomes of whole organ transplantation are significantly better than for split liver transplantation.
    c. Defer listing and continue aggressive medical management while the child grows to at least 10kg prior to transplantation as the outcomes are much better in larger children.
    d. List for whole organ or split but only take a whole organ unless the patient has a GI bleed since the results for split liver transplantation in small children is inferior to whole organ transplantation.
    e. List for whole organ or split and take the first available medically appropriate donor as this is the best way to minimize wait list mortality and the outcomes are similar between whole and split.

   Answer: E. Infants awaiting liver transplantation have the highest waitlist mortality of any age group even despite the improved availability of size matched organs due to improvements in both living donor and split liver transplantation. Split liver transplantation was originally developed in the early 1990's and results have significantly improved over the past two decades. While it was once true that the outcomes for split liver transplantation were worse than for whole organs in small children, that is no longer the case as a recent UNOS/OPTN study has demonstrated equivalent results in the post-PELD era (1). There should not be a minimum recipient weight threshold for listing in children with decompensated cirrhosis as children are currently routinely transplanted at weights as low as 4-6 kg with excellent outcomes using either whole or split grafts.

2. You have gone out of your way to increase the reimbursement for expenses associated with your live organ donors to be as generous as allowed by law, and have begun describing it as such to potential donors. While you expected to have an increase in donations, they have actually fallen since you changed your approach. What is your analysis of the situation?
    a. The amount of money is not high enough to motivate the behavior you seek.
    b. They are probably more interested in non-cash benefits (upgraded travel, etc.) as opposed to cash reimbursement.

c. Something about the communication is leaving participants with an impression that the reimbursement has not in fact gotten more generous, and it will probably be necessary to be less subtle.
d. The money they are receiving is actually undermining the positive emotional benefits they expect to enjoy as a result of being an organ donor.

Answer: D. According to the Cognitive Evaluation Theory, paying people for something they used to do for free may actually get you less of it.

3. A 62 year old male patient with NASH cirrhosis, MELD 20 and a family history of CAD was evaluated for liver transplantation. On echocardiography, he was found to have an EF of 65%. Patient was seen by cardiology and underwent coronary angiography which revealed the presence of a single lesion with 70% stenosis in the mid-LAD. The appropriate next step is:
    a. The patient is not a liver transplant candidate
    b. The patient should be listed and transplanted without further intervention
    c. The patient should undergo combined liver transplantation/CABG
    d. A stent placement followed by liver transplantation is the most appropriate treatment
    e. Combined heart/liver transplantation should be considered.

    Answer: C. Over the last decade the age of LT recipients have increased together with the likelihood of CAD. Currently, it is believed that the incidence of CAD in liver patients is equivalent to the general population. Increased utilization of coronary angiography have resulted in the identification of CAD with variable degree of stenosis in different vessels (mild <50%, moderate 50-70% and severe >70%). The optimal approach for management of such lesions is not yet identified. This highlights the need for a uniform center-specific approach to handling such patients. In one report, multi-vessel disease was predictive of a higher mortality that single vessel lesions (27% vs 4%). The authors concluded that the relationship of CAD with outcomes was dependent on the extent, rather than, the degree of stenosis. However, a multi-institutional study that reviewed 150 CAD(+) recipients, multi-vessel disease was not associated with increased mortality. There were 80 patients who underwent coronary intervention: 2 PTCA, 46 stents and 32 CABG (5 combined LT/CABG); prior to LT. Such patients did not exhibit significantly lower survival rates when compared to CAD(-) group.

4. A patient has been admitted to your service to receive an islet transplant. The initial islet equivalent (IEQ) counts are good and the patient begins induction immunosuppression with anti-thymocyte globulin. Unfortunately, the post-culture counts are below the threshold counts required for infusion (5000 IEQ/kg). What should you do next?
    a. Infuse the islets as planned and schedule patient for early re-transplant if needed.
    b. Do not infuse the islet product, keep the patient on the waitlist as a “high priority” and re-transplant with IL-2 receptor antagonist induction when a suitable islet product is obtained.
    c. Abort the procedure and take patient off the wait list for 6 months to allow blood counts to normalize and then relist

d. Maintain islet in culture, keep patient on waitlist as a 'high priority', and transplant islets with those of another donor when they become available

Answer: B. Infusion of a suboptimal islet dose is not appropriate since the islets will not have a significant impact on glucose control (approximately 10,000 IEQ/kg are needed to achieve insulin independence), and there is a risk of complications and sensitization. Option C robs the patient of valuable time on the waitlist. Option D is not feasible since the islets deteriorate rapidly after several days in culture. Infusion of a suitable islet product with IL-2 Receptor antagonist (daclizumab/basiliximab) induction is the standard approach in this scenario. It makes use of the initial depleting regimen without causing excessive immunosuppression, and allows patient to be re-transplanted relatively quickly. In general, IL-2R antagonist induction can be used up to 7-8 months after the aborted transplant.

5. You are the transplant surgeon at a center that has decided to accept $A_2/A_2B$ donor kidneys for blood group B recipients. You are offered an acceptable quality deceased donor kidney of this type for a blood type B recipient at your center. When your patient asks a number of questions about allocation and outcomes which of the following would you tell them?
    a. Recipient anti-A $I_gG$ titers do not need to be measured prior to listing for $A_2/A_2B$ to B transplantation.
    b. Although more minority candidates are found in blood group B, the majority of listed B candidates are still Caucasian.
    c. Blood type B candidates have average higher rates of transplantation than type O or A
    d. The new allocation schema does not impact long-term survival for either the renal transplant recipient or graft.

Answer: D. New and long term follow up data have demonstrated the safety of transplanting blood type B recipients with subtype $A_2$ and $A_2B$ kidneys. B recipients with low anti-A $I_gG$ titers are acceptable candidates to receive $A_2$ kidney allografts (although the titers may vary across centers). Most blood group B patients are in fact ethnic minorities, and their rates of transplantation are slightly lower than other blood groups, and their wait time on the list is marginally higher.