

Heart Failure May Cause Immunodeficiency in Pre-Transplant Patients

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In pediatric heart failure patients, serologies for cytomegalovirus (CMV) and Epstein Barr virus (EBV) are routinely measured during pre-cardiac transplant evaluation to determine immunity to these viruses. Both CMV and EBV have been implicated in post-transplant complications in children receiving donor hearts that are positive for these viruses. CMV status pre-transplant is routinely used to guide immediate post-transplant therapy. Likewise, EBV serology pre-transplant is used to assess post-transplant risk of post-transplant malignancy and post-transplant lymphoproliferative disease. Several years ago, we discovered that some pre-transplant patients had apparent False Negative serologies drawn as part of their pre-transplant work up that were then positive for IgG within 2 weeks-6 months post-transplant without apparent infection to cause that serum conversion. We hypothesized that this may be an immunodeficiency state caused by heart failure, and in some, due to protein losing enteropathy. We recently reviewed our program experience dating back to 2000 and found >30% of patient serologies appear to be false negatives. The phenomena occurred in patients of all ages as well as in those with previous sternotomy and those without previous sternotomy. The only factor that seemed consistent was the presence of heart failure. This has significant impact on immediate post-transplant management. We share this case series as there appears to be a void of literature exposing the potential for false negative serologies pre-transplant. Our observations may have even deeper implications if this phenomena is also occurring with HLA serology (study in progress) where heart failure induced false negatives could lead to HLA-mismatched heart transplants resulting in earlier rejection, increase risk of vasculopathy and premature death.