HEARTS CONSIDERED FOR TRANSPLANTATION AND TAKOTSUBO SYNDROME

I read with interest the report by Ravi et al, in the January 2016 issue of Proceedings, about the successful transplantation of the heart of a 17-year-old woman to a 61-year-old man with end-stage ischemic cardiomyopathy (1) and the accompanying thoughtful commentary by Lima (2). The authors referred to the currently prevailing restrictive approach in considering donor hearts for procurement for cardiac transplantation (3) and stated that “to date, there are no reports of takotsubo syndrome (TS) in the context of cardiac transplantation” (1). In fact, several such cases have been published and discussed in the literature (4–7). Indeed, a similarity has been suspected to be present in donor hearts of resuscitated cardiac arrest victims, patients with neurogenic stress cardiomyopathy, and patients with TS (6). Accordingly, it is relevant to ask the authors about other triggering or inciting TS factors beyond the motor vehicle accident, like the use of catecholamines (6, 7), in the clinical management of this unfortunate 17-year-old girl. A lesson should be to proceed with procurement of donors’ hearts for cardiac transplantation when underlying heart disease in the potential donors is unlikely. Also, we should start using echocardiography serially and frequently during the clinical management of potential donors, and we should consider emphasizing mechanical device–based hemodynamic support while deemphasizing use of catecholamines (6, 7).

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I enjoyed reading the interesting case report recently published by Ravi et al (1). The authors have described a successful heart transplantation using the heart of a 17-year-old girl involved in a motor vehicle accident. Echocardiography revealed apical ballooning of the left ventricle consistent with takotsubo syndrome (TS). The left ventricular apical ballooning was also directly observed at procurement. One striking finding is the very rapid resolution (within hours after donor cardiectomy) of the left ventricular dysfunction. It occurred after the completion of heart transplantation, where intraoperative echocardiogram revealed complete resolution of the left ventricular ballooning. Could the resolution have occurred directly after donor cardiectomy before transplantation? The disease resolved in spite of continued inotropic support during the first 48 hours.

It is justifiable to wonder whether this rapid recovery has to do with the simultaneous surgical sympathectomy during donor cardiectomy. Surgical sympathectomy may have resulted in relief of the apical myocardial cramp (stunning) caused by the brain death–induced disinhibited cardiac sympathetic tone. If this is true, this observation strengthens the hypothesis about the involvement of the local cardiac sympathetic overactivation disruption in the pathogenesis of TS. The authors have appropriately stated that a loss of brainstem parasympathetic outflow/dischiliation of sympathetic tone may occur in brain death–induced TS. Actually, there is substantial evidence supporting the hypothesis that the local cardiac sympathetic overactivation disruption with norepinephrine seethe and spillover is causing TS, as has been discussed in detail elsewhere (2).

The authors directly observed the apical ballooning at procurement; I wonder if this observation was done before or after donor cardiectomy. If it was before, could the authors observe any change in the apical ballooning after cardiectomy? Furthermore, could the authors describe the palpation findings of the ballooned apical region and the remainder of the left ventricle if palpation of the left ventricle was done? Endomyocardial biopsy was done 1 week after heart transplantation. Have the authors tried to take biopsies from the apical region? If so, did they find signs of contraction bands and vacuolization, which characterize the histopathological findings of TS, or did they find signs of complete healing of the disease (TS) histopathologically?

Transplantation of donor hearts afflicted with TS opens an excellent opportunity for research into the pathogenesis of TS. This author recommends that the heart transplantation team first inspect and palpate the left ventricle followed by surgical sympathectomy of the heart and then inspect and palpate the left ventricle again before donor cardiectomy and repeat the same procedure during completion of the heart transplantation, with intraoperative echocardiography, as the authors of the current case have appropriately done. The analysis of the
biopsy for TS changes in addition to rejection changes is also highly recommended.

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The authors respond

We thank Dr. Madias for his comments and acknowledge the presence of other reports pertaining to this topic. It is certainly possible that the use of catecholamines following the motor vehicle accident could have potentially caused the development of takotsubo syndrome, and we agree with Dr. Madias’ comments on serial echocardiography in the assessment of potential donors with such a presentation and the use of mechanical device–based hemodynamic support.

We thank Dr. Y-Hassan for his comments. It is conceivable that the surgical sympathectomy secondary to donor cardiectomy could have resulted in the resolution of the apical ballooning. At procurement, the apex was felt to be normal, did not appear to be thinned out following cardioplegic arrest, and was comparable to the rest of the left ventricle. A biopsy was not performed on the left ventricular wall at the apex. We agree with Dr. Y-Hassan that detailed evaluation in the perioperative period is important to monitor the progress and improvement of the syndrome.

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ELECTRONIC MEDICAL RECORDS

Dr. Couch’s commentary (1) in the January 2016 issue of Proceedings on the electronic health record (EHR) is correct. However, it fails to mention the full cost of the EHR in terms of the loss of physician productivity. For example, Dallas Diagnostic Association experienced the premature retirement of 12 physicians in large part due to the adverse impact of the EHR. No one at HealthTexas Provider Network did exit interviews with these physicians. Almost all of the currently practicing physicians at Dallas Diagnostic Association have reported decreased productivity and decreased satisfaction with the practice of medicine due to the burdens imposed by the EHR. Certainly, the economics of the practice of internal medicine also play a significant role in the dissatisfaction of internists and internal medicine subspecialists with their professions. It is hoped that you and your colleagues will be effective in improving the usability of the EHR to enhance the experience of both patients and providers.

—LANNIE HUGHES, MD
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FACTS AND IDEAS

Regarding the January “Facts and ideas” comment on health care savings accounts and high-deductible plans, do you know if the requirements for lower deductibles came from the legislation or the “regs”? Very nice article. Thank you again. I practically tear open the journal to get to the “Facts and ideas from anywhere.”

One of my thoughtful friends (our mayor, an attorney; we serve together on our LaGrange City Council) felt that people who can analyze their costs and reduce costs self-select into higher-deductible plans. He felt it was not truly because of the effect of the deductible itself. I thought that was a very good idea. I’m not sure if there is data to answer the question either way.

—TOM GORE, MD
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I always enjoy your Facts and Ideas comments, but especially the review of David McCullough’s book Americans in Paris. I had him autograph my copy when it first came out. Mason Warren comes from a long line of surgeons which continued into the 20th century. I have read his letters in The Parisian Education of an American Surgeon published some time ago by the American Philosophical Society. You might enjoy it as well, or perhaps you’ve read it.

—JEANIE WOODS
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CUBA

I really did enjoy reading your article on the trip to Cuba that you made in February 2015 (1). As best I can tell, not much has changed in Cuba from 2001 to 2015.

I have never recorded the experience that my wife and I had in 2001 when we accompanied the Haverford College baseball team and students for a 2-week daily baseball trip and cultural exchange in Cuba. Our oldest son, Laird, played baseball for the Haverford delegation. My wife and I served as the doctor and nurse for the Haverford delegation.

We were required to enter Cuba from Jamaica. Therefore, we flew from Philadelphia to Montego Bay and then returned to Havana. During the time we were flying from Philadelphia to Montego Bay, Cuban aircraft shot down two airplanes from the US that were dropping leaflets over Cuba.

Prior to our arrival in Cuba, baseball games and meetings had been rearranged. When we arrived in Havana, the delegation was informed that, because of the incident regarding the American airplanes, all previously arranged games and meetings were canceled. These rearranged baseball games were to be the spring training for the Haverford baseball team.
The Haverford delegation was given two tourist buses for transportation. During the ride from the airport to our hotel, we learned from our bus driver, a former professional baseball player, that it was possible to find baseball games in Cuba 24-7-365. We would just need permission to leave Havana and drive into the country and find a city team for a game.

The next day we had permission to leave the city to tour the country. Our bus driver headed straight for Santa Clara (about 50 miles west of Havana). There, at the base of some significant mountains, was a beautiful baseball field. The mountains were the backdrop looking out from home plate. The word went out that a ball game was to be played that day. It required a couple of hours for the Santa Clara team to be in position to start the game. During that time, the Haverford team took batting practice and fielding practice.

It was quite something to see young men walking up in their civilian clothes and work boots, some knee-high rubber work boots, and changing into uniforms and putting on their cleats. The children of the town, mainly young boys, were all over the Haverford dugout. The game was played, and it was very competitive. I cannot remember who won the game, but the score was close. As the Haverford team was loading its equipment, it was discovered that significant numbers of gloves, bats, and balls were missing. After the game, the children of Santa Clara disappeared quickly. This led to the realization that no one could be allowed in the dugout from the community where the team was playing. Following this game, the team had a wonderful meal at a restaurant beside the natural waterfall in the mountains that were the backdrop for the baseball field.

On the road back to Havana, the bus driver started thinking of how to play games against other teams. He mentioned that Cuba had an athletic training complex. At this complex was training for all the Olympic sports, with a wonderful baseball stadium and baseball teams of several levels of expertise. The bus driver detoured to the facility, and the director of athletics at Haverford College, Mr. Greg Kannerstein, discussed playing games against the various level baseball teams at the academy.

Contests were set for the next several days (Figure 1). The first game would be played against a group of retired Cuban national players in the main stadium of the facility. This would be followed by daily games against the level III players, the level II players, and then the level I players. The team was set to play Fidel Castro’s personal team, the Reforma Plaza team, at the baseball field adjacent to Reforma Plaza. Also, since every professional school in Cuba has a baseball team, several games were scheduled against the medical school team from Havana.

The Haverford College team gave the retired Cuban Nationals, most of whom had gray hair, a good game and won the game 9 to 7. The Haverford team was able to beat the level III team twice, and they split the games with the level II team. Playing against the level I team and the Reforma Plaza team were like playing the New York Yankees. The Reforma Plaza team had a player that was the spirit and image of the Ranger’s slugger Juan Gonzalez. This gentleman hit a couple of moon-shots out of the Reforma Plaza Park. The score was not pretty: 14 to 2. The four games played against the medical school team were split. I was able to visit with many of the medical student baseball players. This was quite rewarding.

The hotel we stayed in, the Ambos Mundos, was where Ernest Hemingway lived before he purchased his estate. As we stayed in this hotel 2 weeks, we got to know the personnel fairly well. When the workers at the hotel learned that I was a physician, I saw several of the hotel employees who had questions about their medical problems. The main conditions that I treated during the trip were bug bites and sprains. The Ambos Mundos Hotel had bedbugs. Insect repellent works wonderfully to prevent bedbug bites. You need to get a good coating of insect repellent before retiring for the evening.

The day before our return to the US, the lady who had cared for our room at Ambos Mundos said to Sharon and me, “Would you like to see Mr. Hemingway’s room?” We answered that we would, and we walked up a stairwell to the third floor of the hotel. This lady opened the door and a room was revealed that had a single bed, a nightstand, and a small desk on which sat a Royal typewriter, human powered. There was blank typing paper on the desk. The Ambos Mundos has not touched this room except to clean it since Mr. Hemingway left the hotel in the 1950s.

When we were in Cuba, there were policemen every half block. The city was not safe. We were counseled to not walk by ourselves and to take taxis when possible. The only problematic time of the trip came the night we went to the national stadium.
to watch two professional teams play a game. The two teams were from Havana and a city in eastern Cuba (I do not remember the name of the city). During the game, I was fortunate to be able to purchase a locally made baseball bat from one of the players on the visiting team. I cannot recall how much the purchase price was. The bat was quite heavy. A dollar bill went a long way in Cuba in 2001.

The ballgame went into extra innings and did not finish until after midnight. As it was a very good game, we stayed to watch. When we exited the stadium, there were no taxis to be seen. The policeman at the stadium entrance spoke pretty good English and explained that we would need to walk several blocks to the closest all-night taxi stand. He took a piece of paper and drew a map for us. As there was no ability to use credit or debit cards in Cuba in 2001, Mr. Kannerstein had several thousand dollars in a satchel which he carried everywhere on his person to pay bills as they materialized.

We were a ways from the stadium when three young men and two boys started to follow us. They taunted us and then produced knives and demanded Mr. Kannerstein’s satchel. Mr. Kannerstein told the young men that they would not get his satchel and they needed to leave. By this time, we could see the taxi station about a half block away. I told Kannerstein to make a run for it and I would use my baseball bat to retard these young thugs. Kannerstein took off running with his satchel, and I loaded my bat and was ready to swing. A miracle occurred. The young fellows with the knives ran. I start running to catch up with Kannerstein. We got our taxi and went back to the Ambos Mundos.

The next to last day in Cuba, the Haverford baseball team played the hotel team from the Ambos Mundos. The pitcher for the Ambos Mundos team was a former National Team player for Cuba. He was close to 50 years old, I would guess, and was a lefty. He had a younger brother in the US pitching for the New York Yankees. Following the game, as the players were visiting, my oldest son, Laird, observed that he and this pitcher had similar size feet. The pitcher’s shoes were not in good condition and were patched together. Laird had a spare pair of baseball shoes in his bag. He took the pair of shoes out of his bag and asked this gentleman if they would fit, and they did. The gentleman took off his Cuban National jersey and gave it to Laird. I am sure Laird still has that jersey. One of my favorite pictures is of Laird pitching in the Cuba jersey during a practice game the Haverford team had the next day prior to the plane ride home (Figure 2).

There was so much more to this trip than I have recorded, but I would agree with you that Cuba and the United States of America will be best served by exchange rather than isolation. I could discuss politics, philosophy, and economics. To do so only upsets most people because they have an opinion and their opinion is correct. They can’t comprehend how anyone with half of a brain could have a different point of view. It is a human failing that we believe individuals who do not agree with us are always wrong. Sometimes, there is more than one correct answer for the same question, sometimes not. However, history shows us that certain policies generally work better than others over time. Communism has shown that it is a recipe for economic and cultural failure. From the Pilgrims to Cuba, the result is the same.

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Figure 2. Laird Marynick pitching a game in Cuba.