profiles of "real-world" outpatients with CAD. The HR data will potentially offer dynamic estimations of the changing patterns of HR management, disease presentation, and therapy and may help with the development of a reliable risk prediction tool that is based on HR. CLARIFY will improve knowledge about the contemporary CAD population and may help solidify the role of HR as a prognostic indicator. This study is ongoing, and results are expected in 2015.

The Management of Traumatic Aortic Transection

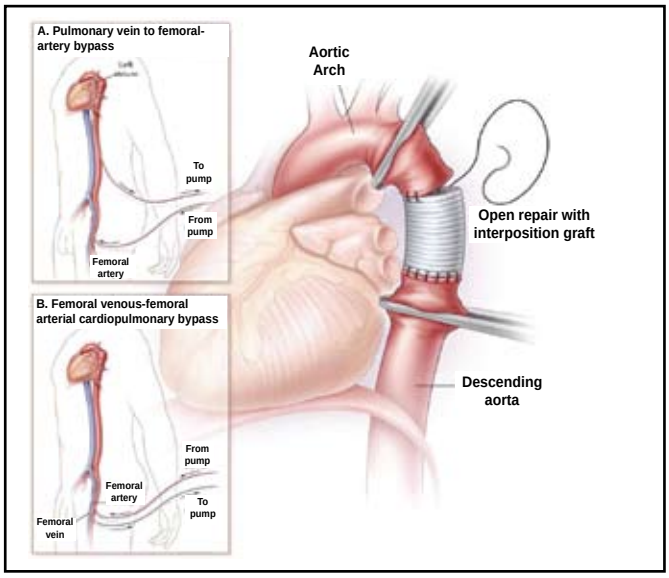
Traumatic aortic transection (TAT) is a rare but often fatal condition, with ~70% of these events caused by blunt motor vehicle trauma (it is the second most common cause of motor vehicle accident mortality [MVA]) [Michetti et al. *J Trauma* 2006]. While the majority of patients dies at the scene of the accident, the prognosis for those who initially survive remains dire, with 90% of deaths occurring within 4 months post-aortic transection. Joseph L. Blidgen, MD, MBBS, University Hospital of the West Indies (UHWI), Kingston, Jamaica, discussed management strategies for TAT, related to 5 cases that were seen at his institution between April 2006 and February 2010.

Diagnostic imaging modalities, such as chest x-ray, angiography, and computed tomography (CT) angiography, which is the current gold standard, are the first step in identifying TAT, particularly among patients who have been involved in a MVA. Further management of TAT may involve adjunctive medical therapy (ie, antihypertensive or β-blocker treatment), open repair (ie, clamp and sew or shunt bypasses), endovascular stenting, or a combination of these methods. Dr. Blidgen cautioned that life-threatening injuries (ie, severe head and abdominal injuries) should be given priority over TAT when present.

Dr. Blidgen and colleagues followed 5 cases of TAT that resulted from MVAs at UWHI. All 5 patients were unrestrained during the MVA, 3 were back seat passengers and 2 were front seat passengers (age range was 15 to 29 years). One patient was diagnosed intraoperatively and referred 4 hours post-MVA once control of intraabdominal bleeding was achieved, 3 were referred 12 hours post-MVA, and 1 was referred 2 weeks post-MVA. Excluding the 15-year-old female who was diagnosed intraoperatively, TAT was diagnosed using chest x-ray and contrast CT scan.

Three patients underwent surgical repair with cardiopulmonary bypass, 1 had left thoracotomy and clamp and sew technique without cardiopulmonary bypass, and 1 patient refused surgical intervention (Figure 1). Of the 4 patients who underwent surgical intervention, 2 had interposition graft placement and 2 had direct repair. One patient had subsequent paraplegia, but there were no reported deaths.

Figure 1. Repair Techniques.



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Endovascular repair is another option for TAT management. It is less invasive than open repair; avoids thoracotomy, single lung ventilation, systemic heparinization, and other potential complications; and can be performed using localized anesthesia. However, it is a relatively new technique; so the long-term prognosis that is associated with this procedure is unclear. Additionally, it may introduce ischemia in other regions, such as the arm or vertebral artery. While this may be a more viable option in the future, these concerns, as well as cost constraints, make endovascular repair less practical at present. Dr. Blidgen concluded that the standard open surgical approach to TAT remains the preferred strategy for the treatment of this complex condition.

Cardiac Surgery and the Appropriate Use of Blood Products in Trinidad and Tobago

The frequency of open heart surgery procedures that are performed in Trinidad and Tobago has increased since procedures began being performed at the Eric Williams Medical Science Complex in 1993, and by 2006, over 200 cases per year were being performed nationally.

This increase in cardiac surgery within the region poses additional clinical challenges that are related to the use of blood products, such as adding to the burden of already limited blood bank resources, the high cost of blood product screening, and the risks of transfusion-related diseases and potential bleeding complications. In this region, the issue of short preoperative periods for patient optimization compounds the problem. "The challenge was in finding ways not to just increase supply but also to minimize the utilization of blood products," explained Ronald Henry, MD, The Doctors Inn Research Group, Trinidad and Tobago.

In an effort to resolve the mounting problem of blood product scarcity and overutilization of resources, Dr. Henry and colleagues developed strategic initiatives that were evaluated at the Port-of-Spain General Hospital. The first initiative focused on preoperative preparation, including holding aspirin or Plavix prior to surgery to minimize blood loss, securing the appropriate number of blood units, and implementing a standard protocol to optimize hemoglobin (Hb) levels prior to surgery, with a target Hb of >15.0 g/dL (Table 1).

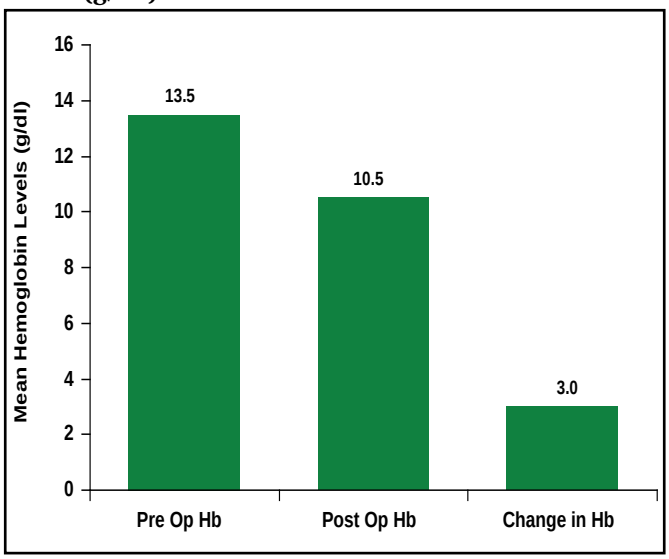
Table 1. Protocol to Optimize Hb Levels Prior to Cardiac Surgery (Target Hb >15.0 g/dL).

Hb Level (g/dL)	Recommended Therapy
<11.0	Intravenous iron sucrose (Venofer®) plus erythropoietin
11-13	Oral ferrous sulfate plus erythropoietin
13-15	Oral ferrous sulfate alone

Another strategy that Dr. Henry and colleagues employed in this program involved hospital laboratory cooperation. Hospital laboratories were asked to consistently provide proper and dedicated refrigeration facilities to allow for a protocol-based return of unused blood, and crossmatching of blood products was part of a pooled analysis that involved multiple potential recipients. Intraoperative management approaches included the use of "Cell Saver" devices, which allow for the reinfusion of blood at the end of the operative process, limiting unnecessary waste, and the prophylactic use of intravenous tranexamic acid to reduce postoperative bleeding. Postoperative protocols were also employed that consisted of stringent indications for transfusion and restriction of utilization to essential candidates.

From September 2006 to November 2009, a total of 227 cardiac surgery procedures (the majority of which was bypass or valve procedures) were evaluated. There were 5 deaths, and the in-hospital mortality rate was 2.2%. Almost all patients who underwent cardiac surgery required preoperative iron therapy, but postoperative Hb ranges were favorable, with 40% of patients in the >11 g/dL range (Figure 1). Thirty-six percent of patients received 200-300 mL of blood that was returned to them due to cell saver therapy, which negated the need for transfusion in this cohort. Most importantly, this study marks the first time that blood was ever returned to the blood bank, despite the previous protocols that were in place, concluded Dr. Henry.

Figure 1. Preoperative and Postoperative Mean Hb Levels (g/dL).



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This evaluation demonstrated the benefit of preoperative optimization of hemoglobin in patients who were undergoing cardiac surgery in a region where blood product resources are a concern. The use of "cell saver" approaches may also reduce the need for transfusion in many patients, thus lowering transfusion-related complication rates. Collaboration with blood banks and specific protocols, as seen in this study, may also optimize blood product utilization. The development of standardized protocols to manage this medical need is necessary in order to reduce the burden that is associated with blood product scarcity in this and other regions that are faced with this same clinical challenge.

The Expanded Use of Device Therapy for SCA in Trinidad and Tobago

Device therapy in Trinidad and Tobago is complicated by regional limitations and inadequate resources. However, sudden cardiac arrest (SCA) events are generally