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Damage Control Partnerships: Trauma Care Capacity-Building Abroad

James A Chambers, MD, MPH&TM, FACS, FCS(ECSA), Col, USAF, MC, SFS
Washington, DC

Susan M Briggs, MD, MPH, FACS
Boston, MA

John Tarpley, MD, FACS, FWACS
Nashville, TN

More than 15% of the global burden of disease is attributable to surgical causes[1] and of these, 5 million deaths per year are attributed to injury—more than HIV/AIDS, tuberculosis, and malaria combined. Ninety percent of these occur in low-middle income countries.[2] Additionally, many Americans work in or travel through regions where outcomes from individual injury, natural disaster, or terrorist events are worsened by lack of access to adequate resources.

Department of Defense (DoD) personnel are not routinely exposed to managing complex trauma, especially in austere environments commonly encountered during deployment. Increasingly, as Dr Demetrios Demetriades reported,[3] they rely on predeployment immersion in American academic trauma centers, which have resources typically not available in combat theaters.[3]

To address this convergence of needs, the authors propose the following:

1. The DoD, along with the US Agency for International Development, the State Department, and the American College of Surgeons (ACS) invest in building surgical capacity at select hospitals in low-middle income countries, building on existing partnerships between the ACS and regional surgical colleges and other authorities.
2. The ACS Committee on Trauma partner with ACS Operation Giving Back to develop resource-appropriate trauma guidelines and training curricula in concert with the World Health Organization, regional surgical authorities, and partner nations' ministries of health. These stakeholders will identify the goals for DoD and partner nation trauma providers and work to establish 5-year roadmaps in low-middle income countries to build capacity.
3. The DoD and partner US civilian medical centers rotate staff to share best practices while learning how to manage trauma and acute surgical conditions in resource-constrained environments, as well as generate relevant clinical research.

In Rwanda, the US Agency for International Development is working with the WHO to develop a surgical workforce that includes 23 partners; the DoD could provide staffing and lessons learned from its Joint Trauma System. In Malawi, University of North Carolina-Chapel Hill already has a surgical exchange program, and the University of Cincinnati has a surgical exchange that recently sent a US Air Force surgeon. In many areas, the DoD will also need to continue to build patient movement capability (ie aeromedical transport) to support resilient, integrated trauma systems and optimize time to care, as has been done in Niger and elsewhere. The United Nations has also committed to building a medical training center in Uganda which could participate in this endeavor.

DoD trauma providers and medical planners largely agree that the US has a strategic interest in international trauma capacity-building (Director, International Health Specialist Program, Office of the Air Force Surgeon General, personal communication, May 2016). The US military recently gained useful experience working ad hoc with French medics in the Sahel, and German *Bundeswehr* providers already rotate in South Africa to achieve several of these same objectives.

To address the increasing global impact of trauma, the DoD and ACS will need to expand their partnerships to define resource-appropriate best practices and train individuals to serve in sustainable medical systems. For our nation and the millions around the world who also desire the benefits of good governance, such as stability and health, it is within our reach and in our interest to do so.

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Use of Total Pancreatectomy and Preoperative Radiotherapy in Patients Undergoing Pancreatectomy with Artery Resection

Marco Del Chiaro, MD, PhD, FACS,
Richard D Schulick, MD, MBA, FACS
Aurora, CO

We read with great interest the paper from Tee and colleagues.[1] We agree with the authors that, with improved efficacy of neoadjuvant treatments for pancreas cancer, use of pancreatectomy with artery resection will increase in specialized centers for the treatment of patients with locally advanced pancreatic cancer.[2] Of note, the morbidity and mortality rates are quite high in this article compared with other recent publications.[2] In particular, looking at the perioperative outcomes of the second period of Tee and colleagues' study and the recent series from Del Chiaro and colleagues,[2] we see a difference in postoperative severe complication (50% vs 12%) and mortality (9% vs 2.9%) rates. It is possible that this difference in outcomes is related to differences in strategy in performing pancreatectomy with artery resection. In Tee and colleagues' experience, postoperative hemorrhage was the greatest predictor of mortality and postoperative pancreatic fistula, and artery reconstruction with graft/conduit was associated with a high risk of major morbidity. In the article by Del Chiaro and colleagues, the majority of patients who underwent artery resection also underwent total pancreatectomy to both eliminate postoperative pancreatic fistula and rotate the splenic artery for reconstruction of resected arterial segment.[3] In that study, use of interposition grafts was also avoided by fully mobilizing the bowel and performing a primary anastomosis without graft.[4,5] Finally, most of the patients in Tee and colleagues'[1] series received preoperative radiotherapy, which theoretically could contribute to postoperative hemorrhage.[6] Of course, there might be disadvantages in performing total pancreatectomy in every patient, as this will lead them to become a relatively brittle diabetic. This will have ramifications for the patients' quality of life and ability to tolerate additional significant chemotherapy. It is also possible that omission of preoperative radiotherapy might not enable R0 resection rate as well. In conclusions, pancreatectomy with artery resection will probably have an increasing role in very carefully selected patients who demonstrate the right biology. We believe that the role of preoperative radiation therapy and total pancreatectomy should be studied further in this very select patient population and that there are pros and cons to their use.

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Arterial Resections During Pancreatectomy

In Reply to Del Chiaro and Schulick

Mark J Truty, MD, MSc, FACS
Rochester, MN

We appreciate the recent thoughtful commentary by Drs Del Chiaro and Schulick about our group's previously published series of arterial resections during pancreatectomy.[1] They appropriately questioned the higher mortality and