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Guideline Statement for Performing Autotransfusion

Introduction

The management of blood administration is essential to maintaining homeostasis in the surgical patient. Intraoperative autotransfusion is the collecting of shed blood from the patient, cleaning the blood of impurities and reinfusion of the blood.⁴ The purpose of autotransfusion is the replacement of shed blood that occurred due to trauma or during the course of surgery to prevent hypovolemia and hypoxia while maintaining the oxygen transport properties equivalent to that of stored allogenic blood, as well as reducing the risk of transfusion reaction, disease transmission and dependence on banked blood.¹ One method of autotransfusion is use of the cell saver machine (multiple technical terms include intraoperative cell salvage machine and autologous blood salvage system), commonly called the “cell saver” to suction, wash and filter blood for parenteral administration.⁵

AST developed the following Guideline Statement with the purpose of providing information that healthcare providers in the perioperative setting can use to develop and implement policies and procedures as related to set-up and operation of the cell saver by the Certified Surgical Technologist (CST). The protocol example provided below is presented with the understanding that it is the responsibility of the healthcare facility (HCF) to develop, approve, and establish policies and procedures for set-up and operation of the cell saver according to established HCF protocols, state and federal medical laws. HCFs should develop policies and procedures related to the evaluation of the competency of perioperative personnel in the operation of the cell saver. This includes integrating these policies and procedures with the facility’s established protocols for the cell saver.

AST GUIDELINE STATEMENT

The CST is qualified to assist the perioperative team in the methods associated with the collection of shed blood, including use of the cell saver. Additionally, the CST who has completed training for the set-up and operation of the cell saver is qualified to perform those actions under the direct supervision of the surgeon(s).

Example Protocol for Operation of Cell Saver by CST

1. CST completes training related to the specific cell saver that is utilized by the HCF surgery department.
 - A. It is imperative that the CST complete the training related to the cell saver, even if the CST operated a cell saver at another HCF.³ This allows the HCF to establish a baseline of knowledge and training completed by the CST.
2. The cell saver tubing and attachments is correctly set-up and prepared on and off the sterile field for collection of shed blood according to HCF procedures and manufacturer’s recommendations.

3. The CST assists with examining the wound and blood to determine if the shed blood is appropriate for autotransfusion, as well as communicating with the surgical team other contraindications for autotransfusion.
 - A. Contraindications for use include bacterial contamination; blood containing fat or amniotic fluid; malignant disease; polymethyl methacrylate; sterile water; and topical clotting agents such as cellulose, collagen, Gelfoam® and thrombin.³
 - B. Confirm topical antibiotics and antiseptic solutions are not aspirated into the cell saver unit.
4. The surgical site is assessed and all sources of reusable shed blood are salvaged including the washing of laparotomy sponges using sterile saline and the use of the appropriate suction tubing (waste or cell saver tubing) for the type of shed blood.
5. The cell saver is disinfected according to manufacturer's instructions and single-use items properly disposed according to HCF policies as well as local, state, and federal regulations.³
6. CST completes continuing education:
 - A. To remain current in their knowledge of autotransfusion, and
 - B. If a new cell saver is purchased by the HCF.

Additional Information

The following are web sites to organizations that provide additional resources and information in regard to autotransfusion techniques:

- American Association of Blood Banks
www.aabb.org
- American Board of Cardiovascular Perfusion
www.abcp.org
- American Society of Anesthesia Technologists & Technicians
www.asatt.org
- International Board of Blood Management
www.intbbm.org

Competency Statements

Competency Statements	Measurable Criteria
<ol style="list-style-type: none"> 1. CSTs are knowledgeable of the principles and practices of autotransfusion. 2. CSTs set-up and operate the cell saver according to the HCF policies and manufacturer's recommendations. 	<ol style="list-style-type: none"> 1. The educational standards as established by the current edition of the <i>Core Curriculum for Surgical Technology</i>.² 2. The subject areas of principles of autotransfusion, blood and blood products and examples of applying the principles are included in the didactic studies as a surgical technology student. 3. As practitioners, CSTs apply the principles and techniques of autotransfusion. 4. CSTs complete continuing education to remain current in their knowledge of autotransfusion and related patient care duties of the surgical patient.

References

1. Ashworth, A., & Klein, A. A. (2010). Cell salvage as part of a blood conservation strategy in anaesthesia. *British Journal of Anaesthesia* 105(4), 401-416.
<http://bj.oxfordjournals.org/content/105/4/401.full> Accessed July 20, 2012.
2. *Core Curriculum for Surgical Technology*. 6th ed. Littleton, CO: Association of Surgical Technologists; 2011.
3. *Standards for perioperative autologous blood collection and administration*. 5th ed. Bethesda, MD: American Association of Blood Banks; 2013.
4. United Blood Services for Hospitals & Physicians. Perioperative blood salvage.
<http://hospitals.unitedbloodservices.org/perioperative-blood-salvage.html> Accessed July 20, 2012.
5. University of Southern California Keck School of Medicine. Glossary of terms.
<http://www.cts.usc.edu/zglossary-cellsaver.html> Accessed July 20, 2012.