

OPERATIONAL GUIDELINES: LABORATORY STUDIES NEEDED IN TRAUMA RESUSCITATION

Guidelines

Refer to ED trauma Order Set

1. At the Upstate Trauma Center, the trauma team has minimal “routine trauma bloods” that are drawn on all patients according to injury status. The blood studies should be individualized to the patient and the injuries that are being treated.
2. The following laboratory studies should be considered for the multiply injured patient:
 - a. Type and cross for four to six units of packed red blood cells:
 - i. A patient who has obvious source of massive blood loss.
 - ii. A patient with traumatic anemia.
 - iii. A patient who is hypotensive from hemorrhagic shock.
 - iv. A patient who is going to the operating room for a surgical procedure that may result in major blood loss.
 - b. Repeat CBC:
 - i. All trauma patients with a significant injury with evidence of hypoperfusion or bleeding.
 - ii. Follow-up on patients who had marginally low hematocrit initially or who have had slow continued blood loss (as in a chest tube).
 - iii. After blood transfusion.
 - c. TEG (Thromboelastography)
 - i. All Level I trauma activations
 - d. Basic Metabolic Panel:
 - i. All patients who may require intravenous contrast with a CT scan.
 - ii. All trauma patients with preexisting morbidity suggesting an electrolyte abnormality (medications, etc).
 - iii. Any patient with suspected renal impairment.
 - iv. All head injured patients.
 - e. Complete Metabolic Panel (or BMP plus liver function tests): Trauma patients with pre-existing illness suggesting abnormalities in liver function or metabolism.
 - f. Clotting studies (PT/PTT/platelet count & INR):
 - i. All trauma patients with suspected coagulation problems or who are taking anticoagulants.
 - ii. All trauma patients requiring massive transfusions (>2 units).
 - iii. All severely head injured patients (GCS <8 or with cerebral pathology on CT scan).
 - iv. All patients over the age of 60.
 - g. Urinalysis:
 - i. All trauma patients with hematuria.
 - ii. All trauma patients with abdominal, flank, or pelvic trauma.
 - h. Serum Lactate: Patient with evidence of tissue hypoperfusion.

- i. Repeat arterial blood gas:
 - i. Patients with $S_aO_2 < 90\%$ on pulse oximetry.

- j. EKG:
 - i. All patients with a serious chest trauma.
 - ii. All patients with arrhythmia on cardiac monitor.
 - iii. All patients with underlying cardiac disease.
 - iv. All patients with sternal tenderness or fractures.
 - v. All patients over age 50.

- k. Serum troponin:
 - i. Patients who may have had a myocardial infarction.
 - ii. Suspicion of myocardial contusion is not an indication for obtaining cardiac isoenzymes or troponins.
 - iii. Consider obtaining CPK for patients at risk for rhabdomyolysis.

- l. Urine myoglobin (consider using serum CPK since myoglobin is expensive test):
 - i. Patients with substantial crush injury
 - ii. Patients with suspected rhabdomyolysis.
 - iii. Dark maple syrup colored urine positive for blood and negative for RBC's.
 - iv. Urine positive for blood and negative for RBC's in patients at risk for muscle necrosis or compartment syndrome.

- m. Serum ETOH Level (alcohol)
 - i. All level I and level II trauma activations

- n. Urine toxicity level
 - i. All level I and level II trauma activations

- o. Transthoracic or transesophageal echo:
 - i. Patients with findings suggestive of myocardial contusion (myocardial dysfunction or dysrhythmia).
 - ii. Patients with findings suggestive of pericardial tamponade (if time permits; otherwise perform a FAST exam).
 - iii. Patients with evidence of impaired myocardial function who are not responding appropriately to fluid resuscitation.
 - iv. TEE - to aid in the diagnosis of thoracic aortic rupture (see widened mediastinum guidelines).