CASE STUDY

(Brady Prehospital Emergency Care, Mistovich & Karren)

SCENE SIZE-UP

You have been dispatched for a 50-year-old male patient who has been stabbed by his wife. The wife is in police custody and the scene is safe to enter.

The daughter leads you to an enclosed back porch where you find the patient lying on his side in a pool of blood.

Suddenly, a dog rushes from the house and begins barking ferociously. The daughter yells, "Winston! Go back inside the house!" You ask the daughter to take Winston into the house and place him in a room and close the door to secure him.

PATIENT ASSESSMENT

The patient is moaning in pain and clutching his abdomen.

You ask the patient his name to determine the level of responsiveness. He states, "Paul - My name is Paul. I can't believe she stabbed me. I just wanted to watch the football game in peace." From his response, you gather that he is alert, oriented to his name, has an open airway, and is breathing adequately

You note that the patient is breathing at a rate of 24/minute and slightly shallow. You think that his minute ventilation appears to be slightly increased because of an increased ventilatory rate; however, you want to be sure that his alveolar ventilation is also adequate.

His chest is rising and falling adequately with each breath; thus, he appears to be moving enough tidal volume to sustain the alveolar ventilation.

His radial pulse is barely palpable and his skin is pale, cool, and clammy. You expect that the skin is pale, cool, and clammy as a result of vasoconstriction occurring from sympathetic nervous system stimulation and circulating epinephrine and norepinephrine to maintain the blood pressure.

The weak pulse is likely due to a loss of volume, a decreased preload, and a decreased cardiac output and intense peripheral vasoconstriction.

His heart rate is 122 bpm. You think that the heart rate is elevated as an attempt to raise the cardiac output and to increase or maintain the blood pressure.

Your partner places him on a nonrebreather mask at 15 lpm in an attempt to fill the alveoli with a concentration of oxygen to attach as many oxygen molecules as possible to the binding sites on the hemoglobin in the blood.

You expose the patient and perform a quick examination of his body from head to toe, looking for other injuries and signs. During the assessment, he complains, "My belly hurts really bad." The abdomen is rigid and tender when you palpate it. You suspect this is from blood in the abdominal cavity. Your partner assesses the vital signs: BP 102/88 mmHg, heart rate 122 bpm, respirations 24/minute, and skin pale, cool, and clammy.

The pulse pressure appears to be narrow. You do a quick mental calculation and determine that 25 percent of 100 is 25; thus, the pulse pressure should be around 25 mmHg or greater. You quickly subtract the diastolic blood pressure from the systolic and determine that the pulse pressure is 14 mmHg. You suspect the narrow pressure is correlated with blood volume loss from the stab wound to the abdomen, causing a drop in preload and a decrease in stroke volume and cardiac output, causing the systolic blood pressure to decrease. The baroreceptors sensed the decrease in pressure inside the aortic arch and carotid sinuses and sent impulses to the brain stem to trigger the sympathetic nervous system to raise the blood pressure.

Based on the formula BP = CO x SVR, you suspect the increased heart rate is an attempt to raise the cardiac output, and the pale, cool, clammy skin is a sign of vasoconstriction in an attempt to increase the systemic vascular resistance.

The decrease in cardiac output and increase in systemic vascular resistance are-creating the narrow pulse pressure.

You cover the stab wounds to the abdomen and prepare the patient for transport. En route you continue to reassess the patient, contact the receiving medical facility and provide a radio report. Once at the medical facility you provide an oral report to the physician and complete transfer of care.