**Interactive Case Studies and the Human Body (1-10)**

**The Female Body**

**Case Study 1**

**Hematology**

*AIDS*

Answers:

1. This individual has Acquired Immunodeficiency Syndrome (AIDS) caused by the Human Immunodeficiency Virus (HIV).
2. The hematocrit abnormality is caused by the dehydration.
3. Some current treatments include: AZT (Zidovudine) and ddI (Didanosine), both antiretroviral agents which slow the replication of the virus, prevent occurrence or recurrence of opportunistic infections, and boost the immune system.
4. The individual is experiencing hypokalemia prior to treatment.
5. This abnormal potassium level could cause cardiac arrhythmias due to the hyperpolarization of the resting membrane potential.

**Case Study 2**

**Gastrointestinal**

*Hiatal Hernia*

Answers:

1. The disorder is a hiatal hernia. This is a structural defect in which a weakened diaphragm allows a portion of the stomach to pass through the esophageal diaphragmatic opening into the chest when intra-abdominal pressure increases.
2. Adequate lower esophageal pressure at the lower esophageal sphincter normally prevents gastric reflux into the esophagus when lying down or bending over.
3. The parasympathetic division of the autonomic nervous system (cholinergic) innervates the lower esophageal sphincter (LES). Therefore, cholinergic agonists would increase LES contraction, preventing gastric reflux. Anticholinergic agents would decrease LES pressure.
4. Histamine (H2) antagonists are recommended because they reduce gastric acidity by selectively blocking the H2 receptors (which mediate gastric secretion).
5. Elevation of the head of the bed is recommended to encourage gravitational flow of the gastric contents toward the pyloric end of the stomach.
6. The normal pH of the esophagus is 6-7.  
   The normal pH of the stomach is 2-5.  
   The lower esophageal pH for this individual may be approximately 3-5. The stomach pH would not change (pH = 2-5).