

## Hypertension Questions

1. Which of the following is the appropriate cuff sizing for measuring blood pressure?
  - a. A cuff whose height that is 80% the length of the upper arm
  - b. A cuff bladder that's length is 80% of the arm circumference
  - c. A cuff width that is 50% of the arm circumference
  - d. A cuff bladder that is 25% the arm circumference
  
2. What is the definition of Stage I Hypertension?
  - a. SBP/DBP >85<sup>th</sup>% but <90<sup>th</sup>% for height and age
  - b. SBP/DBP > 90<sup>th</sup>%, but <95<sup>th</sup>% for height and age
  - c. SBP/DBP >95<sup>th</sup>% but <99<sup>th</sup>% for height and age
  - d. SBP/DBP >99<sup>th</sup>% for height and age
  
3. What features separate a hypertensive urgency from an emergency?
  - a. Percentile of blood pressure
  - b. Duration of elevation
  - c. Signs of end organ involvement
  - d. A & C
  - e. All of the above
  
4. Which of the following is *not* potentially a sign of end organ involvement?
  - a. Seizure
  - b. Irritability
  - c. Vomiting
  - d. Respiratory distress
  - e. None of the above
  
5. Which of the following medications does not cause hypertension?
  - a. Prednisone
  - b. Propanolol
  - c. Oral contraceptives
  - d. Ceftriaxone
  - e. Cocaine
  
6. Which of the following hypertensive scenarios requires immediate treatment?
  - a. A 3yo with h/o renal disease and Stage I HTN, now with SBP > 99th%
  - b. A 2mo admitted for labial abscess with SBP > 99th% and tachycardia
  - c. A 10yo admitted for asthma with SBP at 98th% with tachypnea
  - d. A 1yo admitted for bronchiolitis with SBP > 99th% with lethargy

## Hypertension Answers

1. **(B)** An appropriate cuff size is based on the bladder size, which should have a length that is 80% the circumference of the arm. Cuff bladder width should be 40% of the arm circumference. An incorrect cuff size (too small) can give falsely elevated blood pressures.
2. **(C)** Stage I Hypertension is a blood pressure that is  $>95\%$  but  $<99\%$  of the age/weight based norms. Prehypertension is between the 90<sup>th</sup> and 95<sup>th</sup> percentiles.
3. **(C)** Signs of end-organ damage are what differentiate Hypertensive Urgency from Hypertensive Emergency, and thus determine the need for emergency treatment. Hypertensive Urgency can be treated with oral or IV medications on the floor with individual doses. Hypertensive Emergency requires more monitored IV treatment in an ICU setting.
4. **(C)** Signs of end-organ damage are seen in several systems, including CNS, Renal, Cardiac and Eyes. The most obvious include mental status changes, such as irritability in infants and children, seizures, and signs of heart failure, including respiratory distress. Vomiting is not considered a sign of end-organ damage, though it may reflect increased ICP which is a secondary cause of HTN.
5. **(D)** Though many medications can cause hypertension, Ceftriaxone does not have the side effect. The rest of the choices are in therapeutic categories, that through a variety of mechanisms, can increase blood pressure.
6. **(D)** The most likely of these to need immediate treatment is the bronchiolitic who has a Hypertensive Emergency -- the elevation of the BP combined with the end-organ symptom of lethargy is highly concerning, especially in a setting of few other causes. Though (B) could be considered a Hypertensive Urgency, the blood pressure is likely increased by the pain associated with the abscess, and therefore pain medications could be tried first. The asthmatic only has Stage I Hypertension, which is most likely influenced by the steroid treatment of asthma, and his tachypnea is likely due to the asthma. Finally, the patient with a h/o HTN and renal failure would be considered a chronic patient, and though oral medications could be used, a conversation with the nephrologist should be had.