Assessing Vital Signs in Children

Problem

There is no more important routine and repetitive function for identifying emerging problems in the hospitalized patient than measuring and recording the vital signs. Vital signs are even more critical to note and reassess on a routine basis in children.

Vital signs usually consist of an assessment of the temperature, pulse, respiratory rate and blood pressure. While temperature norms do not vary between children and adults, the scales for the other vital signs are dramatically different, not only between children and adults, but also between children of different ages. The nurse needs to be aware of age-related vital signs when caring for pediatric patients and evaluating their physiological status.

Consequence

Incorrect measurement and misinterpretation of vital signs in children will increase the risk of missing critical health problems and/or implementing inappropriate treatments.

Solution

Here are some suggested steps to take to prevent / avoid this problem.

- The pulse rate of a neonate is 140 to 160 beats per minute and progressively slows as the child ages, reaching adult levels by 14 to 16 years of age.

- Children respond to intravascular depletion through increasing their heart rate to maintain cardiac output; hence, tachycardia in the resting state is a very sensitive measure of volume depletion and should be recorded.

- The response to volume repletion in the hypovolemic or dehydrated child can often be assessed through the reduction in the heart rate that accompanies the intervention.

- Children attempt to maintain their minute ventilation, which is the product of their respiratory rate times their tidal volume.

- As tidal volume decreases, because of atelectasis, pneumonia or other pathologic state, the respiratory rate will increase to achieve minute ventilation.
• Tachypnea is important to detect and one of the most underappreciated vital signs.

• For children, the respiratory rate needs to be counted for a full minute (rather than for 15 seconds and multiplied by 4); children have periodic breathing and accuracy in determining the respiratory rate is critical to understanding their physiological status.

• In children, heart rate is a much more sensitive indicator to volume status than the blood pressure.

• When hypotension occurs in children, it is usually the end result of a long period of decompression and one in which it is difficult to reverse.

• Blood pressure in children is highly dependent upon the manner in which it is taken; cuff size is very important and cuffs that are too snug will lead to false elevations in blood pressure.

• Blood pressure will likely be falsely elevated if the assessment is done while the child is crying from agitation or pain.

• Vital signs are important to note and reassess on a routine basis in children; the vital signs need to be assessed in an appropriate manner and compared against age-appropriate normal values.

References

Avoiding Common Nursing Errors, Lisa Marcucci, MD, Editor, Lippincott Williams and Wilkins, 2010.

Note: A narrated e-Learning module of this Nugget is available at LearningNurse.com.