ADVANCED ASSESSMENT
Vital Signs

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References – Emergency Medicine

VITAL SIGNS: PEARLS

Pulse

On patient arrival take a quick check of radial pulse.

- Present?
- Fast/Slow?
- Regular/Irregular
- Bilateral pulses?

Pulse

Helps to quickly identify the presence of underlying illness.

- Dysrhythmia?
- Hypovolemia?
- Etc.

Cardiac Monitoring

Lead II is commonly used for monitoring patients

- when a dysrhythmia exists that is difficult to interpret, look at other leads & adjust the ECG size as needed
- don't rely on the monitor's digital read-out for the heart rate – double check with a pulse assessment and by manually calculating the heart rate on the ECG graph paper.

Blood Pressure

- Cuff size is important
  - Too small = falsely high reading
  - Too large = falsely low reading
  - Loose cuff = falsely high reading
- Timing
  - cuff deflation too slow = diastolic pressure falsely high
  - cuff deflation too fast = systolic high & diastolic high

Blood Pressure

- Hold the patient's arm at about the level of the heart
- Avoid taking B/P over clothing!
- For B/P by palpation in a moving vehicle where it may be too noisy to auscultate and the pulses are weak, palpate the brachial artery

Blood Pressure

- Bilateral blood pressures need to be **taken** and **documented** for chest pain – especially pain of a "tearing" quality that radiates to the back.
- Identify and attempt to rule out dissecting thoracic aortic aneurysm for thrombolytic therapy.
  - In an acute thoracic aortic dissection, blood may dissect along one of the subclavian arteries resulting in a lower B/P in one arm compared with the other
  - 15-20 mmHg difference in systolic pressure is considered pathological

Blood Pressure

- Blood pressure measurement provides supportive evidence or good or poor perfusion – it's not the definitive sign
  - e.g. a systolic pressure of 100 mmHg may be normal for some people and it may be profoundly hypotensive for others
  - Look for other signs of perfusion – e.g. mental status, skin colour, capillary refill, etc

Mean Arterial Pressure (MAP)

- Average pressure reached inside the artery.
- Estimated by MAP=Pd+(Ps-Pd)/3
- Normal values range between 77-97mmHg

Respiration

- check rate, depth and rhythm, and also look for accessory muscle use, indrawing, symmetry, etc.
- estimate the patients level of respiratory distress based on the above, their ability to speak in full or broken sentences and their mental status.
- auscultate and interpret adventitious breath sounds – it is one of the cornerstones of Paramedic care
  - If you feel your auscultatory skills need work, take advantage of senior partners, respiratory therapists, nurses and physicians to develop your skills

Respiration - Pediatric

- crying will not prohibit you from doing a thorough chest auscultation – in fact, the baby tends to inhale deeply when crying, making it easier to auscultate
- look for chest wall and diaphragmatic movement to gauge the effectiveness of breathing
- speak with the parent(s). They will provide invaluable information about the patient's level of distress compared to "normal"

Respiration

How would you define the term hyperventilation?

A Respiratory rate greater than 20 bpm

B Deep breathing

C None of the above

Respiration - misconception

How would you define the term hyperventilation?

A Respiratory rate greater than 20 bpm

B Deep breathing

C None of the above

In fact, hyperventilation is defined as a "minute volume" (rate x volume) that exceeds the body's metabolic demands

- e.g. a patient may be breathing at a rate of 60 bpm and hypoventilating or breathing a 10 bpm and hyperventilating.
- Rate or depth alone do not define "hyperventilation"
- Hence it's important to observe rate & depth closely

Skin

- Not only assess skin colour, temperature and moisture, but also check skin **turgor.**
- Tent the skin on the back of the hand and see how fast it recoils (forehead may be more reliable location to assess turgor in the elderly).
- Indicates level of hydration, dependant on the age of the patient
- On infants, look for sunken eyes and fontanels for signs of dehydration

Pupillary Response

- Assess the pupils response to light and that there is a consensual constriction of the opposite eye.
- Nystagmus? (involuntary eye movement)
- Deviation?
- Disconjugate gaze?

Pupillary Response to Light

Dilated and Unresponsive

- Cardiac Arrest
- CNS Injury
- Hypoxia/Anoxia
- Drug use/anticholinergic

Constricted and Unresponsive

- CNS injury
- Narcotic OD/opiate use
- Eye med's

Unequal (one dilated and unresponsive)

- Stroke
- Head injury
- Direct trauma to the eye
- Eye med's

Level of Mentation

Healthy patients:

- should be oriented to person, place and time.
- have organized thoughts and converse freely

- Use AVPU for primary survey, then the GCS

Last Thought

- Remember to check postural vital signs (unless contraindicated)
- Change in pulse and blood pressure between sitting and supine

Well Done!

Ontario Base Hospital Group

Self-directed Education Program

SORRY,
THAT'S NOT THE CORRECT ANSWER