BLOOD PRESSURE ASSESSMENT

Dr. Taj

Objectives of this practical class:

- To define blood pressure and explain why there is normally a blood pressure.
- To describe the Korotkoff sounds and their explanations.
- To define systolic, diastolic, pulse & mean arterial pressure and their significance.
- To list methods of measuring blood pressure, and mention the advantages and disadvantages of each method.
- To discuss the indications and the precautions of measuring BP

Objectives of this practical class (continued):

- To describe the equipment for measuring BP in each method.
- To show the correct technique for measuring BP.
- To determine the effects of using a wrong size cuff for measuring the BP.
- To define auscultatory gap and its significance
- To identify the physiological factors that affect BP
- To define and classify hypertension in adults.
- To define and classify hypotension in adults.

- **Case scenario**
- Ahmed is 65 years old journalist , is known to be diabetic for 15 years, came complaining of dizziness.

- The task: Check the blood pressure of Ahmed.

Definitions

- Blood pressure means the pressure applied by blood against the lateral walls of blood vessels as it passes through them.

  - Unit of Measurement-----mmHg
  - Normal BP
    - Systolic-------120 (100—140mmHg)
    - Diastolic------80 (60– 90mmHg)

Definitions

- What is pulse pressure ?

➢ It is the difference between systolic and diastolic blood pressure.

- Normal Range----------30 to 60 mmHg

Definitions

- What is Mean Arterial Blood Pressure ?

➢ It is the average pressure which drives the blood forward in the tissues (through blood vessels) throughout the cardiac cycle.

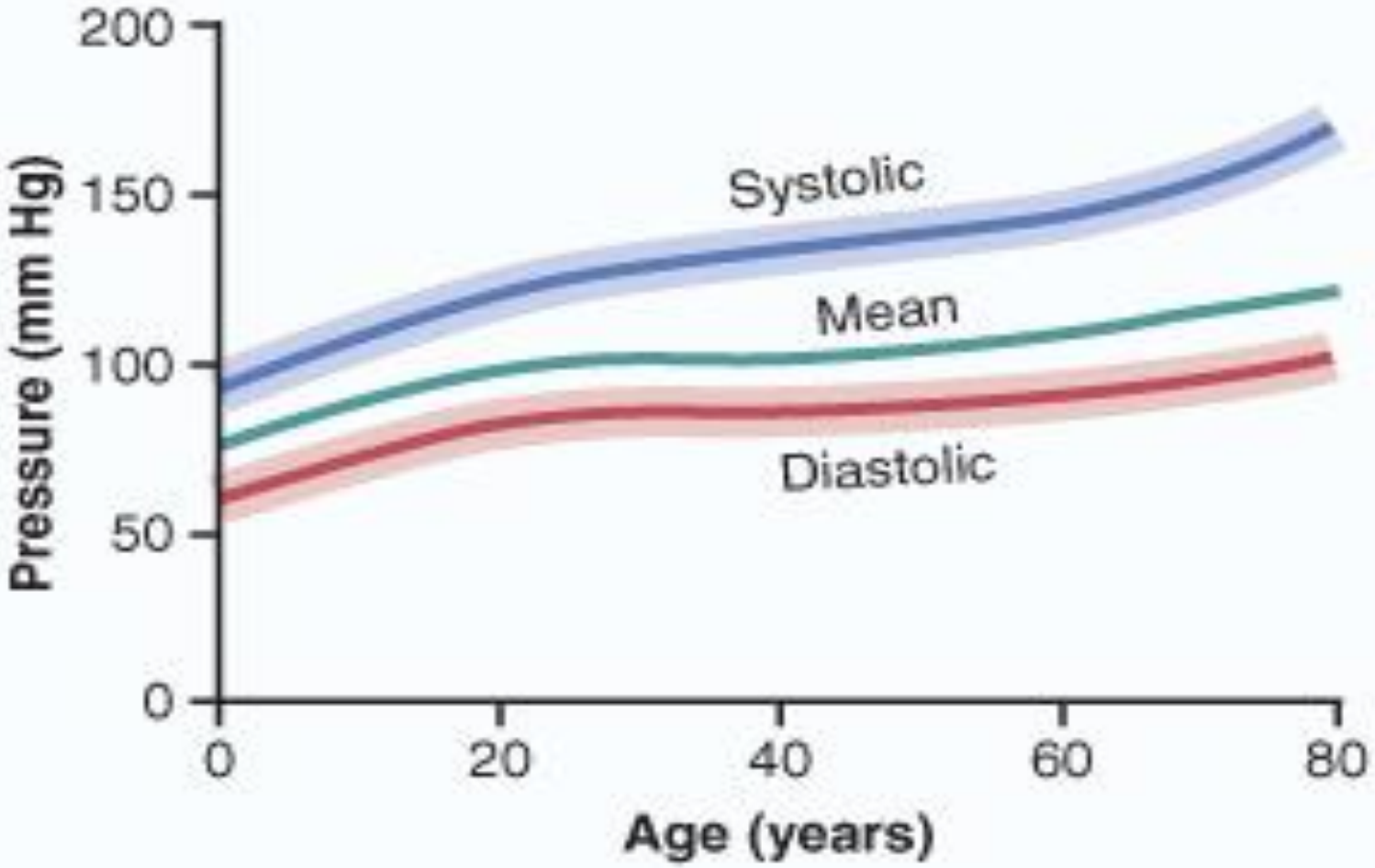
- Mean Arterial B.P

=Diastolic B.P + 1/3 Pulse pressure

= 80+1/3 x 40=93mmHg

Factors affecting BP

- Age, Sex
- Posture
- Exercise
- Anxiety or Stress
- Gravity
- Sleep
- Pregnancy


200
150
100
50
0
Pressure (mm Hg)
Systolic
Mean
Diastolic
0
20
40
60
80
Age (years)

PRACTICAL

BLOOD PRESSURE MEASUREMENT

- Normal BP< 120/80 mmHg (In Adults)
- Range:
  - Systolic –100-120mmHg
  - Diastolic—60-80mmHg
- Equipment
  - Stethoscope
  - Sphygmomanometer

- Core steps:

1. introduce your self to the patient and check the identity.
2. Explain the procedure and take consent.
3. Check your equipment.
   a) Make sure the apparatus is working and set to zero.
   b) Choose the correct cuff size.
      - The cuff should cover more than 40% of the circumference of the arm.

Methods of Measurements

- Palpitory
- Auscultatory

Palpitory Method

1) Localize the radial & brachial pulses.
2) Before you start, please ask the following questions:
   a) Have you ever get your blood pressure checked? If so, what is your blood pressure usually?
   b) Are you in any medication for BP?
   c) Did you do any exercise in the last half hour?
   d) Did you have any tea, coffee or a cigarette in the last half hour?

3) Support the arm horizontal at heart (mid-sternal) level

4) Inflate the BP cuff until a level which is about 20-30 mmHg above the point at which the pulse is no longer palpable.

5) Now slowly deflate the cuff 2mm/sec until the pulse is palpable again.

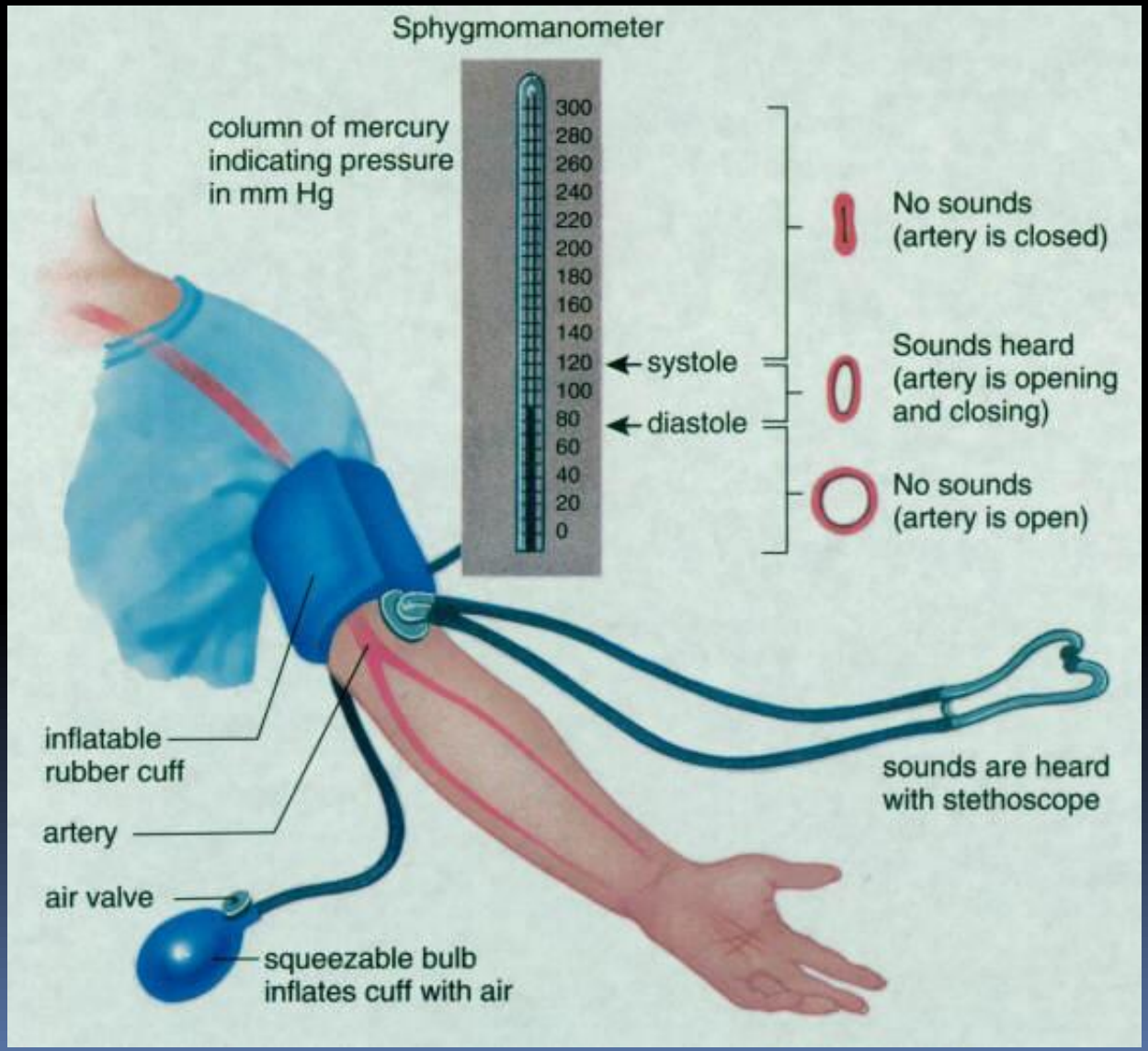
- This is the systolic BP.
- In this method only the systolic pressure can be measured, while the diastolic pressure cannot be measured.

Auscultatory Method

1) The cuff pressure is inflated quickly to a pressure about 30 mm Hg higher than the systolic pressure determined by the Palpitory method.
2) Then the air is let out of the cuff slowly.
3) At some point the person listening with the stethoscope will begin to hear sounds with each heartbeat. This point marks the systolic pressure.
4) Continue to deflate until the point at which they disappear. This point marks the diastolic pressure.
5) Repeat the procedure if you are unsure of the blood pressure.

- The sounds are called Korotkoff sounds.

Methods of Measurements



Precautions

- Cuff Size
- Body Position (reading varies with position).
- Activity Level (at rest), as patient should have rest in relaxing position for at least 5 min before the procedure.
- Cuff should be at the level of the heart.
- Don’t keep cuff inflated for too long.

Precautions

- Do not forget to remove the cuff from the arm and thank the patient.
- Recheck the BP of the patient after 2 minutes, by repeating the procedure in the other arm.
- Record the systolic and diastolic pressure to the nearest 2 mmHg, the cuff size, arm used, time & date of measurement.
- Tell the patient about his own blood pressure.

Blood pressure during exercise

- BP changes with exercise.
- Conditions Blood pressure
- Before exercise 120/80 mmHg
- After mild exercise 140/80 mmHg
- After heavy exercise 160/60 mmHg

- after mild exercise, systolic blood pressure increases while diastolic blood pressure remains more or less the same.
- Following heavy exercise, the systolic pressure increases tremendously and the diastolic pressure drops.

Hypertension:

BP category	Systolic BP		Diastolic BP
Normal	<120mmHg	and	<80mmHg
Elevated	120-129mmHg	and	<80mmHg
Hypertension stage 1	130-139mmHg	or	80-89mmHg
Hypertension stage 2	≥ 140mmHg	or	≥ 90mmHg
Hypertensive urgency	> 180mmHg	and/or	> 120mmHg
Hypertensive emergency	> 180mmHg + target organ damage	and/or	> 120mmHg + target organ damage

THANK YOU