

PBL

☒ Sheet

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Number

3

Subject

Hypertension

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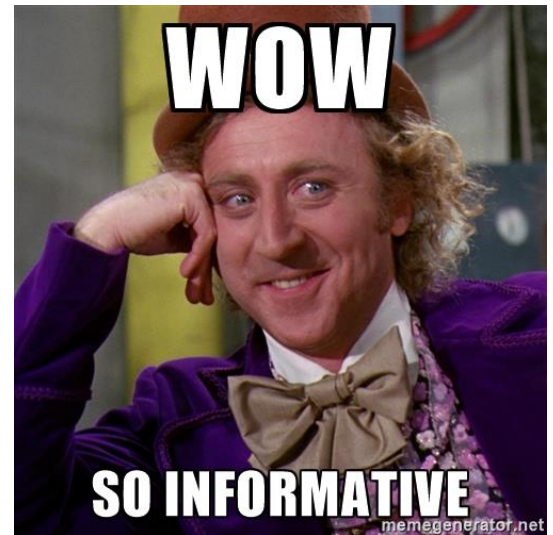
Price:



Easiest sheet in this system! 😊

HyperTension

- ⌘ HTN is high blood pressure
- ⌘ Very common clinical problem, 1 out of 5 people have HTN
- ⌘ Blood pressure depends on:
 - ↪ CO cardiac output
 - ↪ SVR systemic vascular resistance



$$CO = HR * SV_{(\text{stroke volume})}$$

$$SV = \text{end diastolic Volume} - \text{end systolic Volume}$$

- ⌘ SVR depends on arterioles
- ⌘ Sympathetic and Parasympathetic increase and decrease HR
- ⌘ Sympathetic also vasoconstriction main cause of blood pressure "tone of blood vessels"
- ⌘ "Postural hypotension" prevented by vasoconstriction on both sides venous and arterioles

- ❧ Fluid volume effects blood pressure which is controlled by renin angiotensin system “main system to keep blood pressure in the body”
- ❧ Other hormones “systems” also effect volume like aldosterone and ADH...
- ❧ Sodium intake “salt” affects blood volume → affects blood pressure greatly
- ❧ “Salt intake affects fluid volume not how much fluid drunk!”

HTN is:

- 140/90 or more
- Multiple measurements at different times, patient should be at rest.
- Patient should be sitting with his back and legs supported for 5 minutes, he also should be calm.
- Haven’t been smoking recently and taken the stairs on the way, not watching the news or anything that makes him nervous.
- Take 2-3 readings at the clinic or if the patient wants to measure his pressure at home he should write the readings on paper
- Don’t give him a drug from the first time of HTN diagnosis, because the drug is life commitment so we have to be sure that we can’t lower the blood pressure by changing the lifestyle of the patient first, and confirm the HTN then start giving him drugs.
- (blood pressure is higher at the morning, mainly all medical events occur in the morning due to hormones and stimulants surge “epinephrine norepinephrine, cortisol etc...”, so strokes, heart attacks, giving birth, increased blood pressure occurs in the morning)

Classification of HTN:

- Normal
- Pre-hypertensive “at risk” → we do primary prevention
- Hypertensive

Primary prevention mainly by losing weight

➤ HTN cause: Primary or Secondary

- Mostly HTN is primary, called essential HTN of unknown cause “*idiopathic*”, and it’s mostly hereditary “genetics”
- Secondary HTN, due to an underlying cause:

1- Coarctation of the aorta:

- upper body has HTN, while lower body has lower pressure,
- also there are X-ray findings in the ribs “*due to arteries enlargement*”,
- Most important hint is “Delay of pulse between the femoral and radial pulse
→ femoral pulse is delayed
- It is fixable

2- Renal artery stenosis:

- Ischemia “reduced blood flow” in the kidney induces it to produce renin-angiotensin

3- Endocrine causes:

- Pheochromocytoma:
 - neuroendocrine tumor of the medulla of adrenal glands that secretes high amounts of catecholamines
 - Sudden onset HTN, flushing, very rare

4- diabetes is associated with HTN “both cause each other”

Metabolic syndrome:

Pre-hypertensive, pre-diabetes, dyslipidemia, central obesity...

Central obesity is measure it by abdominal circumflex not BMI

Extra note:

BMI = weight “kg”/height²

BMI

20-25 normal

25-30 overweight

30-35 obese

>35 morbidly obese

- ❖ Main source of salt in our food?

∞ **Bread!**



- ❖ Main complication of HTN?

∞ **Stroke!**

- ❖ Other of HTN is **SILENT KILLER**, why?

∞ No symptoms appear with HTN until serious damage occur like Stroke!



High blood pressure is called
"The silent killer"
because many people suffer
from it and don't even
know they have it.

- ❖ Heart muscle become thick “hypertrophied” to compensate





❖ White Coat Syndrome: increased blood pressure due to fear “anxiety” from the whole medical environment, *ABPM* “ambulatory blood pressure monitoring” is used in this case to measure patient blood pressure throughout the day

Extra question: some people have normal pressure in the clinic but when they get home their pressure is elevated, why?

Due to the “**Wife** Syndrome”



Last sheet in this course, first sheet in 2017...

I wish you all the best and hope you enjoyed these PBL sheets ♥



Omar Saffar