LAB REPORT

by Student's Name

Course Code + Name Professor's Name Institutional Affiliation City Date







Introduction. A brief, concise, descriptive narrative including the purpose. (100 words)

Blood pressure is sometimes referred to as the arterial pressure. It is the measure of the force that results when blood pushes against the blood vessel walls. The heart is responsible for pumping blood to the arteries. However, these arteries are tasked with the responsibility of carrying blood to all parts of the body. Therefore, to ensure that heart is not given hard work of pumping blood, it is important to monitor the blood pressure. This is because when it is above or below the normal blood pressure, a doctor can help in correcting it. It is on this basis that lab exercise on measuring the blood pressure was deemed important.

Question 2

Procedure. List (or in a paragraph) ALL the steps you did in the lab. Your procedure needs to be written so anyone can repeat it. (150 words)

Examine your lab partner's blood pressure. To do this, follow these steps:

1. Make sure the patient is relaxed;

2. Prepare equipment including choosing correct size cuff and clean stethoscope;

3. Adjust patient clothing to facilitate cuff (the cuff should be about an inch above the bend of the elbow);

4. Use radial pulse to estimate systolic pressure and deflate cuff fully;

5. Inflate the cuff to 20-30 mm HG above estimate;



6. Place the diaphragm of the stethoscope gently over the brachial artery, then immediately release pressure at approximately 2 mm HG per second;

7. Deflate the cuff slowly by turning the pressure valve next to the rubber bulb, counter-clockwise;

8. Listen for the first sound, and read the meter at that point. Record the number as the systolic pressure. Continue to listen for when the sound changes, or drops off. Record the number as the diastolic;

9. Repeat the procedure and determine the blood pressure in each of the following conditions:

a. at rest/lying

b. when standing

Results – These are the results of your observations. Subjects Lying Down – BP and Pulse

Subject 1	Subject 2	Subject 3	Subject 4
120/68 mm Hg	110/70 mm Hg	98/70 mm Hg	98/78 mm Hg
69 beats/min	68 beats/min	82 beats/min	86 beats/min

Subjects Standing- BP and Pulse

Subject 1	Subject 2	Subject 3	Subject 4
120/70 mm Hg	112/85 mm Hg	110/70 mm Hg	105/70 mm Hg
69 beats/min	77 beats/min	81 beats/min	89 beats/min



(a)Pulse/ Sa02 %, (b)Pulse/ Sa02 % at 5 min, (c)Pulse/ Sa02 % at 10 min

Subject 1	Subject 2	Subject 3	Subject 4
(a) 98 beats/min	(a) 108 beats/min	(a) 100 beats/min	(a) 126 beats/min
(b) 81 beats/min	(b) 86 beats/min	(b) 85 beats/min	(b) 71 beats/min
(c) 75 beats/min	(c) 86 beats/min	(c) 65 beats/min	(c) 73 beats/min

Question 3

Discussion. Explain why the readings changed using evidence from a valid text book, a journal and a credible website. (400 words)

Blood pressure usually deviates from the normal readings. The deviation is mostly attributed to a number of conditions including smoking, genetics, age, hypertension, thyroid and adrenal disorders, alcohol consumption, physical activity and stress. These deviations often are accompanied with changes in the heart rate (Tkachenko et al., 2012). Blood pressure measured when lying was average at 106.65/71.50 while the heart rate was 76.25. Whereas, the average of the blood pressure measured when standing was found to be 11.75/73.75 with a heart rate of 79. As revealed in these findings, the heart rate and blood pressure averages were lowest when the patients were lying down. But, this is expected since at a lying posture, the body does not work hard to pump blood to the whole body as is the case with a standing position (MacWilliam, 2012). In fact at a lying position, the body is basically in the same horizontal plane, while in a standing position, the body works harder to pump



blood to the whole body. In addition, there is natural pool by the gravity to lower the blood pressure in the leg veins. In response, the nervous system tends to correct this by making blood vessels narrower. This results to increased blood pressure which was established in the standing position. This is also what resulted to the increased heat rate at this posture. According to Jhalani et al. (2005), the slowed blood pressure when lying as compared with sitting is attributed to different mechanisms. In his findings, hydrostatic influence is the major cause. Indeed the high blood pressure in the standing posture was influenced by hydrostatic difference which caused carotid sinus reflex.

As noted by Brickman et al. (2010), physical activities can result to changes in blood pressure and heart rate. Indeed, the findings after exercise which averaged at 108, 80.75 and 74.75 pulse/Sa02%, Pulse/Sa02% at 5 min and Pulse/Sa02% at 10 min respectively affirmed these findings. The changes noted resulted from the variation in plasma norepinephrine. These studies have also indicated that heart rate changes with the mood. Immediately after exercise the body is excited and there is a very high heart rate, however, as the body becomes less excited, the heart rate lowers. All these findings are consistent with the changes in the heart rate which were recorded after the exercise. This is because. immediately after the exercise the body was excited and the plasma norepinephrine level was raised resulting to high heart rate, which decreased with decreasing plasma norepinephrine (Gottdiener et al., 2002).

Question⁴

Conclusion. What did you learn from the completing the report?



For sure, this lab exercise was of great importance to me. First, it increased my knowledge and experience in taking blood pressure measurements. It has enabled me to master the steps that are vital while taking these measurements as well as the most useful instruments that must be availed during the exercise. Most importantly, the lab exercise increased my understanding on the need to consistently monitor the patients' blood pressure and heart rates when they are relaxed. In addition, it increased my insight on the need to consider the posture of the patient when taking blood pressure measurements. From these lessons I have realized that heart rate increases greatly following exercise or intense physical activity. However, it falls rapidly as the body recovers from the excitement induced by physical activity. On the other hand, posture matters a lot when taking blood pressure, as well as the heart rate measurements. This is because a lying posture has got low levels of blood pressure and heart rates when compared with the standing position. The reason is partly due to gravity and hydrostatic influence on the carotid sinus reflex (Jhalani, et al., 2005).



Reference

Brickman, A., Reitz, C., Luchsinger, J. et al. (2010). Long-term blood pressure fluctuation and cerebrovascular disease in an elderly cohort. *Arch Neurol.* Vol. 67(5): 564-9.

Gottdiener, J., Panza, J., Sutton, J., et al. (July 2002). Testing the test: The reliability of echocardiography in the sequential assessment of valvular regurgitation. *American Heart Journal* 144 (1): 115–21

Jhalani, J. & Tanya, G. et al. (2005). Anxiety and outcome expectations predict the white-coat effect. *Blood Pressure Monitoring*. 10 (6): 317–9

MacWilliam, J. A. (2012). Postural Effect on Heart Rate and Blood Pressure. Experimental Physiology.

Tkachenko, B., Evlakhov, V. and Poyasov, I. (2002). Independence of changes in right atrial pressure and central venous pressure. *Bull. Exp. Biol. Med.* **134** (4): **318–20**.

