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Discussion

Question A

Vasodilation increases the afterload. The heart works effectively if the pressure pumps blood directly proportional to the average arterial pressure when it is going through the ventricular contraction. However, when harmful microorganisms invade the bloodstream, the body may react by widening the blood vessels, increasing the vascular lumen's diameter in significant arteries and veins. As a result, the increase of the aorta's diameter increases the aortic and pulmonary pressures, consequently reducing the vascular resistance (Vest, 2019). The reduction of blood flow resistance makes the blood flow with ease, and little pressure is required by the heart to pump blood during systole.

Vasodilation reduces arterial resistance and blood pressure by relaxing the smooth muscle cells of arteries prompting the heart's faster pumping of blood. Hence, the ventricular systole is increased as a result, and this is determined by the amount of blood pumped versus the heart rate (Siddiqui, 2011). The lower the blood vessels' resistance, the higher the pressure during the pumping of the blood by the heart.

Question B

Vasodilation reduces blood pressure. When it occurs, it enhances the blood vessels' diameter, making the vessels have a reduced wall resistance. The wall resistance reduction offers little pressure for the easy pumping of more blood (Vest, 2019). The process of vasodilation naturally makes the blood pressure of the body drop. The reduction of blood pressure due to vasodilation in the body can cause dizziness and even faintness.

Notably, the baroreceptor reflex in her aortic arch and carotid sinus will reduce pressure within the blood vessels and releases impulses to the vasomotor center. This reduces parasympathetic tone, bringing her blood pressure to normal (Waghmare & Srivastava, 2016). The fall of her blood pressure will automatically trigger the stimulation of VMC that further stimulates sympathetic nervous system in increasing the pulse rate, cardiac output, together with hence blood pressure.

References

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