

A & P II Exam 3
Mix and match terms

1. Afterload - The pressure that must be exceeded before ejection of the blood from the ventricles (the pressure required to open the semilunar valves).
2. Aldosterone - Hormone, affects blood volume. From the adrenal cortex, released when blood plasma levels drop. Causes Na^+ to be reabsorbed from the urine which increases blood plasma levels because it creates an osmotic gradient. Therefore water is reabsorbed from the urine.
3. Aldosteronism - Having a high level of the hormone aldosterone.
4. Anamnestic response - secondary response of specific immune system. On the first response the T-Cells and B-Cells need to be activated which takes time, the secondary and future responses are much faster because memory cells (already activated T-Cells and B-Cells) can start right away.
5. Anaphylactic shock - Shock caused by exposure to a chemical (bee sting, shell fish, etc.) that one is sensitive to.
6. Anergy - When a T-Cell that would attack the self is kept alive but made unresponsive to antigens.
7. Antibody - Proteins produced by B-cells that attack a single specific antigen.
8. Antidiuretic hormone - ADH, affects blood volume. From the pituitary in response to low blood pressure/volume. Increases the permeability of the distal convoluted tubule of the kidney to water, therefore the kidney reabsorbs more water. Also causes vasoconstriction.
9. Antigen - Molecules recognized as non-self (foreign).
10. Antigen presenting cells - Special cells that can have MHC-II (Major histocompatibility complex - II) proteins found on them. These include: macrophages/monocytes, B-Cells, Kupffer cells in the liver, microglia cells of the CNS, Langerhans cells of the skin, and dendritic cells of the lymph nodes and spleen.
11. Acquired immune deficiency syndrome - AIDS, the disease caused by infection with the HIV (Human Immunodeficiency Virus) virus.
12. Arteriosclerosis - Hardening of the artery walls, typically from the buildup of plaque.

13. Atrial natriuretic peptide - Hormone produced in the atria of the heart. Released when the right atria stretches during filling, causes an increase of loss of water in the kidneys (increases the glomerular filtration rate), also causes vasodilatation and inhibits the release of ADH and Aldosterone.
14. Autoimmune disease - Diseases which cause the immune system to attack the body.
15. Baroreceptors - Sensors in the aortic arch and carotid sinus which sense the blood pressure and increase the heart rate if it drops.
16. Blood pressure - The pressure of the blood in the veins and arteries. $BP = CO \times PR$
17. Calcitonin - Hormone, produced in the Thyroid, reduces blood calcium levels by increasing bone production (osteocytes).
18. Cardiac output - The amount of blood the heart pumps out of the right or left ventricle each minute. $CO = SV \times HR$.
19. Cardiac reserve - The difference between the amount of output the cardiovascular system can provide (CO Max) and the amount that is required at rest (CO at rest).
20. Cell mediated immunity - (T-Cells) lymphocytes that attack antigens directly. Part of the specific immune system.
21. Complement - 20 serum proteins that help macrophages and other immune cells to recognize foreign cells and destroy them.
22. Congestive heart failure - Heart muscle dies, causing one side of the heart to either fail or produce so little stroke volume as to be ineffective in moving blood, lack of oxygen to the heart causes more heart muscle to die, and eventually the entire heart dies.
23. Contractility - The force of contraction of the individual muscle fiber in the heart.
24. Costimulation - The second signal in the T-cell activation process. Provided by T-4 helper cells.
25. Deletion - When a T-Cell that would attack self is identified and programmed to die (apoptosis).
26. Diastolic pressure - The pressure in the arteries between strokes (lowest pressure remaining in the vessels).
27. Edema - Build up of fluid in the tissue. Systemic edema is the buildup of fluid in the body tissues often due to heart

failure of the right side, Pulmonary edema is the buildup of fluid in the lungs often due to heart failure of the left side.

28. End diastolic volume (EDV) - The amount of blood in the ventricles when they are full (after filling before the contraction starts).

29. End systolic volume (ESV) - The amount of blood in the ventricles when the contraction has just completed (blood remaining in the ventricle after the contraction has finished).

30. Epinephrine - Hormone, adrenal medulla.

31. Epitope - (antigen determinants): The specific parts of antigen molecules that trigger an immune response or the part of an antigen that cells present bonded to MHC proteins on their membranes.

32. Frank Starling law - (preload) The greater the stretching of the heart during filling of the chamber, the greater the force of contraction.

33. General adaptation syndrome - GAS, the response an animal has to a stressor.

34. Haptens - molecules from antigens which move across mucus or cutaneous membranes and bond with proteins. Common: Poison oak, poison ivy, cosmetics, deodorants, and heavy metals.

35. Heart rate - Number of heart beats per minute.

36. Histamine - Released from cells (mast cells in the tissue and basophiles in the blood) when they are damaged, causes more fluid to move into the tissue swelling the tissue so that immune system cells can move into the area.

37. Human immunodeficiency virus - HIV. Virus that causes the destruction of the T-4 helper cells, preventing activation of the specific immune system

38. Humoral immunity - (B-Cells) lymphocytes that produce antibodies (proteins) which attack a specific foreign cell. Part of the specific immune system.

39. Immune system - A system that identifies foreign materials in the body as non-self and produces cells or molecules that bond with them and destroy them.

40. Immunization - The process of artificially stimulating the immune system to be ready to attack a specific antigen.

41. Immunologic tolerance - The immune system being tolerant of

it own cells.

42. Interferon - compounds produced in response to viral infections and prevent viral replication in cells.

43. Interleukin-1 - IL-1 is a costimulator (hormone like mediator) for T-4 helper cell activation.

44. Interleukin-2 - IL-2 is a costimulator (hormone like mediator) for stimulating the proliferation of activated T-Cells.

45. Lacteals - Lymphatic vessels that are found in the villi of the small intestine and carry lipids absorbed in the small intestine into the lymph ducts.

46. Lymph - The fluid that is collected and carried throughout the lymphatic system. Mostly water, originates from the blood plasma that has been forced out of the capillaries.

47. Lymph nodes - Small nodes, about 2.5cm and kidney bean shaped. Contains nodules that have masses of T-lymphocytes, B-lymphocytes, natural killer cells and macrophages.

48. Lymphatic capillaries - Vessels that absorb fluids (lymph) from the tissues.

49. Lymphatic system - A system of vessels in the body that collects excess fluid from the tissue and returns it to the cardiovascular system. Also involved in the immune system response and moving lipids from the small intestine to the blood.

50. Lymphatic vessels - Formed by the merging of lymph capillaries, carry lymph fluid back to the blood stream by contraction and one way valves

51. Macrophages - Red blood cells which phagocytize worn out or foreign cells/entities.

52. Major histocompatibility complex - (MHC). The antigens found on the surface of cells that control whether cells are recognized as part of your body or not. Two classes of MHC: MHC-I & MHC-II.

53. Membrane attack complex - Caused by complement proteins which attack foreign cells creating holes in their membranes which cause the cells to lyse due to osmosis.

54. Memory cells - T-Cells and B-Cells which have been activated for fighting an antigen in the past and will not need to be reactivated if that antigen appears again. Why immunization works.

55. Natural killer cells - Part of the non-specific immune system. Lymphocytes found in the spleen, liver, lymph nodes, and bone marrow that bond to foreign cells causing them to lyse. They can also lyse some tumor cells.
56. Negative inotropic agents - Agents which reduce contractility.
57. Negative selection - T-cells that have T-cell receptor sites that bond to body (self) proteins are eliminated or inactivated by deletion or anergy.
58. Neutrophils - Part of the non-specific immune system. Circulating white blood cells that phagocytize foreign cells.
59. Non-specific immune system - One of two components of the immune system. Does not need to be activated, attacks all cells identified as foreign, not particularly effective. Composed of natural killer cells, neutrophils and Reticuloendothelial system.
60. Norepinephrine - Hormone, adrenal medulla
61. Opsonization - When complement proteins bond to antigens and act as receptor sites for phagocytic cells helping them to recognize and destroy the foreign cell.
62. Peripheral resistance - The resistance to blood flow through the peripheral part of the circulatory system.
63. Pheochromocytoma - Tumors of the adrenal gland that cause excessive secretion of the hormones epinephrine and norepinephrine which increase the heart rate and cause vasoconstriction.
64. Plasma cell - Activated B-Cell (secretes antibodies).
65. Positive inotropic agents - Agents which increase contractility.
66. Positive selection - Immature T-Cells in the thymus that are capable of recognizing the bodies proteins as self survive, while those that do not undergo apoptosis.
67. Preload - The stretching of the ventricle when it is filled.
68. Peyer's patches - An aggregation of lymph nodes found in the ileum of the small intestine.
69. Primary hypertension - High blood pressure where the causes can not be identified.
70. Reticuloendothelial system - (R.E. System) Has two parts:

Fixed macrophages found in the spleen, liver, lymph nodes, and bone marrow and circulating macrophages (monocytes). Both phagocytize foreign cells.

71. Secondary hypertension - High blood pressure with an identifiable cause.

72. Shock - Inadequate cardiac output, occurs if the avg blood pressure goes below 60 (avg of systolic & diastolic).

73. Specific immune system - Immune system that attacks a specific intruder. Must be activated for the specific foreign cell. Composed of T-Cells and B-Cells.

74. Spleen - An organ just below the diaphragm and behind the stomach. Has chambers that resemble a lymph node. Much better blood supply than a lymph node has.

75. Stressor - Anything that takes the animal away from homeostasis.

76. Stroke volume - The amount of blood ejected from the ventricle in each contraction.

77. Sympathetic - Nervous system, fight of flight response.

78. Systolic pressure - The pressure in the arteries at the peak of the contraction from the ventricles.

79. Thymosin - Hormone produced by thymus which stimulates lymphocytes to move to other lymphatic tissue.

80. Thymus - A small gland located along the trachea, connected to lymphatic vessels. Has chambers which contain a large number of lymphocytes, is involved in the formation of T-lymphocytes from precursor lymphocytes formed in the red bone marrow. Also produces the hormone Thymosin that stimulates the lymphocytes to move to other lymphatic tissue.

81. Tonsillectomy - The palatine tonsils are removed and the pharyngeal tonsils may also be removed.

82. Tonsils - An aggregation of 5 lymph nodes at the back of the pharynx that participate in immune responses to inhaled or ingested pathogens. (Pharyngeal/adenoid, palatine, lingual)

83. T-suppressor cells - Cells that release lymphokines which cause the B-cell division to slow down and the activated B-Cell population to reduce dramatically.

84. T-4 helper cell - Cells that provide the second signal in the T-Cell activation (costimulation).

85. Viscosity (blood viscosity) - Blood thickness.