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1. Describe the importance of vasculature in relation to immune system and outbreak of pandemic covid 19 on human body

Vasculature in immune system helps to transport nutrients to organ and tissues and to transport wastes away from organs and tissues in the blood. A significant role of vasculature is that it participates in the oxygenation of the body. Specialized endothelial cells line the blood and lymphatic vessels of the body and act in a variety of ways to control the delivery and removal of oxygen, nutrients, and circulating cells to the tissues. Endothelial cells are active participants in the immune response to inflammation through their role in regulating the trafficking and activation of immune cells. There is wide variation in the immune cell infiltrate seen in solid tumors, both within and between different tumour types. This can provide important prognostic and predictive information. However, specific immune cell subsets modify this association including regulatory T cells, myeloid derived suppressor cells and tumour associated macrophages. However, hypoxia in the tumour microenvironment can impair the maturation and differentiation of dendritic cells. It can also combine with cellular mechanisms such as expression of co-inhibitory immune checkpoint molecules to control the activity and proliferation of immune cells in the tumour microenvironment. Vasculature also plays a crucial role in successful clinical outcomes of engineered tissue constructs.

In relation to the immune system and outbreak of covid-19 on the human body

Covid-19 is an illness caused by the corona virus. It starts with droplets of an infected person's cough, sneeze or breath. The heightened immune response can trigger a cytokine storm - white blood cells activate a variety of chemicals that can link into the lungs which allow with the attack of cells damage them to further notice. The corona virus could be in air or surface. Within 14 days one's immune system may respond to early symptoms like sore throat, a fever or a dry cough. The virus then moves down to the respiratory tract that is the airway that includes one's mouth, nose and lungs. The lower airway are ACE2 receptors. So covid-19 is more likely to go deeper than other viruses like common cold. It makes the lungs get inflamed making it difficult for one to breathe. This can lead to pneumonia - an infection of tiny air sacs inside the lungs where it exchanges oxygen with carbon dioxide for most people the symptoms end with cough and a fever. More than 8 to 10 cases are mild but for some the infection gets more severe. After 5 to 8 days after the symptoms begins they have shortness of breathe known as dyspnea. Acute respiratory distress syndrome (ARDS) begins a few days later it can cause a fast rapid breathing and can also cause dizziness and sweating. It damages the tissues and the blood vessels in the alveoli, causing debris inside them. This makes breathing

more difficult. Many people that get ARDS needs to breathe with the help of a ventilator.

2. subartorial canal is an important area in the lower limb explain

The subartorial canal is a narrow conical tunnel located in the thigh. It is approximately 15cm long, extending from the apex of the femoral triangle to the abductor hiatus of the abductor Magnus. The canal serves as a passage way from structures between the anterior thigh and posterior leg.

The subartorial canal serves as a Passage way for structures moving between the anterior thigh and the posterior leg. It transmit femoral artery, femoral vein(posterior to the artery), nerve to the vastus medial and the saphenous nerve- thr largest cutaneous branch of the femoral nerve. As the femoral artery and vein exit the canal, they are called popliteal artery and vein respectively.

The subartorial canal block for knee surgery under ultrasound guidance. It also provide excellent pain control and shortens the time of stay in the hospital it preserves quadriceps muscle strength .

The subartorial canal also has some clinical relevance; in abductor canal block, local anaesthetic is administered in abductor canal to block the saphenous nerve in isolation or together with the nerve to the vastus medialis.

The block can be used to provide sensory anaesthesia for procedures involving the distal thigh and femur, knee and lower leg on the medial side.

The sartorius and femoral artery are used as anatomical landmarks to locate the saphenous nerve.

3. Discuss the extraocular muscle and intraocular muscle with their nerve supply

The extraocular muscles are six muscles that control the movement of the eye and one muscle control the eyelid elevation (levator palpebrae). The action of six muscle responsible for eye movement depend on the position of the eye at the time of muscle contraction

The levator palpebrae superioris is the only muscle involved in the raising of the upper lid of the eye.

Innervation: The levator superioris is innervated by the oculator (CN III). The superioris tarsal muscle (located within the LPS) is innervated by the sympathetic nervous system.

There are 4 recti muscle which are the inferior rectus superior rectus lateral rectus and the medial rectus. The name recti muscle is derived from a Latin word straight.

Their main function is elevation and the medial rotation of the eyeball

Innervation: oculomotor nerve (CN III)

Innervation : lateral rectus; abducens nerve (CN VI)

Oblique muscle: There are two oblique muscles; the superior and inferior oblique muscles. The superior oblique does not originate from a common tendinous ring. They take an angular approach to the eyeball. The superior oblique muscle depresses, abducts and medially rotates the eyeball.

Innervation: Trochlear nerve (CN IV)

The inferior oblique muscle: Originates from the anterior aspect of the orbital floor

Innervation: oculomotor nerve (CN III)

The intraocular muscles include the ciliary muscle, the sphincter pupillae, and the dilator pupillae. The ciliary muscle is a smooth muscle that controls accommodation by altering the shape of the lens, as well as controlling the flow of aqueous humor into Schlemm's canal. There are three primary axes of ocular movements: vertical, transverse, and anteroposterior. Rotation around the vertical axis results in either adduction (medial movement) or abduction (lateral movement) of the eye. The rotation around the anteroposterior axis enables movement of the eye. The superior rectus muscle primarily elevates the eye and contributes to adduction and extorsion. The superior oblique abducts, depresses and medially rotates the eye, while the inferior oblique abducts, elevates and laterally rotates the eye.

The ciliary muscle is innervated by parasympathetic postganglionic neurons located in the ciliary ganglion. The preganglionic neurons are located in the Edinger-Westphal nucleus; their axons reach the ganglion via cranial nerve III. Like other parasympathetic postganglionic neurons, those supplying the ciliary muscle are cholinergic and the acetylcholine receptors of the ciliary muscle can be readily blocked with atropine drops.