GROSS ANATOMY (ANA210) ASSSIGNMENT

# ABU ANGEL ANONE

## NURSING SCIENCE

### 18/MH02/006

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

Vasculature is the function of blood vessels to transport nutrients to organs/tissues and transport wastes away from tissue or blood. The main purpose and significance role of vasculature is its participation in oxygenating the body.

The immune system itself, is the body’s integrated response that fights against foreign substances called antigens. When the body senses these antigens, the immune system works to recognize and eliminate it in every possible way.

The immune cell that infiltrates in tumors varies widely in density, composition, and clinical significance. Blood vascular and lymphatics endothelial cells have important roles in the trafficking of immune cells, controlling the micro environment, and modulating the immune response.

Circulating T cells contact blood vessels either when they extravasate across the walls of micro vessels into inflamed tissues or when they enter into the walls of larger vessels in inflammatory diseases such as atherosclerosis. The blood vessel wall is largely composed of three cell types: endothelial cells lining the entire vascular tree, pericytes supporting the endothelium of micro vessels and smooth muscle cells forming the bulk of large vessel walls. Each of these cell types interacts with and alters the behavior of infiltrating T cells in different ways, making these cells active participants in the processes of immune-mediated inflammation.

 *The coronavirus pandemic* has turned the world’s attention to the immune system, the body’s defense force against disease-causing bacteria, viruses and other organisms that we touch, ingest and inhale every day.

\* Until a vaccine is available, our immune systems will need to adapt unaided to COVID-19.

\* The immune system is the body’s multi-level defense network against potentially harmful bacteria, viruses and other organisms.

\* A healthy lifestyle helps one's immune system to be in the best shape possible to tackle pathogens, but it’s better to stop them entering the body in the first place.

Think of the immune system as the body’s personal army working from the cellular to macro level. Each cell, molecule, tissue and organ in this army plays a vital role in warding off invading pathogens, and also helps guard against internal threats like cancer.

The system has two types of response: innate and adaptive.

The body’s natural barriers against disease-causing intruders – for example, our skin, the mucous and hairs in our nose, and the acid in our stomachs – are part of our innate immune systems.

Adaptive immunity develops over a lifetime of contact with pathogens and vaccines, preparations which help our immune systems to distinguish friend from foe.

Vaccination safely teaches our adaptive immune systems to repel a wide range of diseases, and thus protect ourselves and others.

There is currently no vaccine for coronavirus, and we may not see one for 18 months or longer. So, for now, our immune systems must adapt unaided to this potentially deadly threat. How to help your immune system

A healthy lifestyle – not smoking, drinking little or no alcohol, sleeping well, eating a balanced diet, taking regular moderate exercise and reducing stress – helps our immune systems to be in the best shape possible to tackle pathogens.

**2. Subsartorial canal is an important area in the lower limb, discuss.**

The adductor canal (Hunter’s canal, sub sartorial canal) is a narrow conical tunnel located in the thigh. It is approximately 15cm long, extending from the apex pf the femoral triangle to the adductor hiatus of the adductor magnus.

 The contents of the canal: The adductor canal serves as a passageway for structures moving between the anterior thigh and posterior leg. It transmits the femoral artery, femoral vein (posterior to the artery), nerve to the vastus medialis and the saphenous nerve – the largest cutaneous branch of femoral nerve.

 The adductor canal is bordered by muscular structures:

* Anteromedial: Sartorius
* Lateral: Vastus Medialis
* Posterior: Adductor Longus and adductor magnus

IMPORTANCE

 The adductor canal serves as a passage way from structures moving between the anterior thigh and the posterior leg.

CLINICAL RELEVANCE

In the adductor canal block, local anesthetic is administered in the adductor 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 anesthesia for procedures involving the distal thigh and femur, knee and lower leg on the medial side.

Adductor canal compression syndrome describes entrapment of the neurovascular bundle within the adductor canal. A rare condition, it is usually caused by hypertrophy of adjacent muscles such as vastus medialis.

**3. Describe the extraocular and intraocular muscles with their nerve supply.**

* **INTRAOCULAR MUSCLES**

The Ciliary muscle: is ring of smooth muscle in the eye’s middle layer (vascular layer) that controls accommodation for viewing objects at varying distances and regulates the flow of aqueous humor into Schlemm’s canal. It changes the shape of the lens within the eye, not the size of the pupil which is carried out by the *sphincter pupillae muscle* and dilator pupillae.

*Attachment-* (Origin)longitudinal fibers to scleral spur, circular fibers to encircled root of iris. (Insertion) longitudinal fibers to ciliary process, circular fibers to encircled root of iris.

*Action-* Accommodation, regulation of trabecular meshwork pores sizes.

*Innervation-* Short ciliary from Oculomotor nerve.

* **EXTRAOCULR MUSCLES**

These muscles are located within the orbit, but are extrinsic and separate from the eye ball itself. They act to control the movements of the eyeball and the superior eyelid. There are seven extraocular muscles:

1. The levator palpebrae superioris:

This is the only muscle involved in raising the superior eyelid.

*Attachments*- originates from the lesser wing of the sphenoid bone, immediately above the optic foramen. It attaches to the superior tarsal plate of the upper eyelid (a thick plate of connective tissues)

*Actions*- Elevates the upper eyelid.

*Innervation* – it is innervated by the oculomotor nerve (CN II). The superior tarsal muscle is innervated by the sympathetic nervous system.

1. Superior rectus:

*Attachment –* Originates from the superior part of the common tendinous ring, and attaches to the superior and anterior part of the sclera.

*Action –* elevation.

*Innervation –* Oculomotor nerve

1. Inferior rectus

*Attachment –* Originates from the inferior part of the common tendinous ring, and attaches to the superior and anterior part of the sclera.

*Action –* depression.

*Innervation –* oculomotor nerve.

1. Medial rectus

*Attachments –* Originates from the medial part of the common tendinous ring, and attaches to the anteromedial aspect of the sclera.

*Action –* Adducts the eye ball.

*Innervations –* Oculomotor nerve.

1. Lateral rectus

*Attachments –* originates from the lateral part of the common tendinous ring, and attaches to the anterolateral part of the sclera.

*Action –* Abducts the eyeball.

*Innervation –* Abducens nerve.

1. Superior oblique

*Attachments –* Originates from the body of the sphenoid bone. Its tendon passes through a trochlear, and then attaches to the sclera of the eyes, posterior to the superior rectus.

*Action –* Depresses, abducts and medially rotates the eyeball.

*Innervations-* Trochlear nerve.

1. Inferior Oblique

*Attachments-* Originates from the anterior aspect of the orbital floor. Attaches to the sclera of the eye, posterior to the lateral rectus.

*Action-* Elevates, abducts and laterally rotates the eyeball.

*Innervations-* Oculomotor nerve.

Functionally, they can be divided into two groups;

* Responsible for eye movement – Recti and oblique muscles
* Responsible for superior eyelid movement – levator palpebrae superioris