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COURSE: GROSS ANATOMY 210

MATRIC NO: 18/MHS02/171

LEVEL: 200

DEPARTMENT: NURSING

DATE: MONDAY, 13TH OF APRIL 2020

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

Ans: Immune-mediated inflammation of peripheral tissues depends upon local recruitment of circulating leukocytes into an extravascular site. In most instances, leukocytes are recruited across the wall of post-capillary venules, which are composed of a continuous, one cell thick inner lining of endothelial cells (ECs) supported by an incomplete outer layer of pericytes (PCs) located within the basement membrane to which the ECs are attached. Larger vessels are not directly involved in leukocyte trafficking into tissues, but may themselves be a target of inflammation, for example when arteries become involved by cell-mediated immune responses as occurs in atherosclerosis. In the arterial wall, the EC lining of the vessel is completely covered by vascular smooth muscle cells (SMCs), some of which are located within the vessel intima, consisting of the EC lining and the anatomic space immediately beneath the basement membrane of the ECs. However, most SMCs are densely concentrated in a multilayered, circumferentially oriented array within the vessel media, which surrounds and is separated from the intima by the internal elastic lamina. The arterial adventitia is external to the media and separated from it by the external elastic lamina. The adventitia contains fibroblasts, nerve endings, microvessels (known as vasa vasorum) and vascular stem cells. While much of this emphasis has been on the roles played by parenchymal cells in peripheral tissues, cells of the blood vessel wall are also positioned to affect lymphocytes and recent observations have provided a deeper understanding of how blood vascular ECs, PCs and SMCs interact

with infiltrating T cells in adaptive immune responses that occur near microvessels of inflamed peripheral tissues and within the wall of inflamed macrovessels. In this review we consider how these interactions impact the nature of the immune response, with focus on observations made with human cells and tissues. The outbreak of COVID-19 highlights cracks in global trust, the pitfalls of global interdependency and the challenge for global governance. Epidemics are both a standalone business risk and an amplifier of existing trends and vulnerabilities.

2. Subartorial canal is an important area in the lower limb, Discuss.

Ans: The adductor canal block aims to block the saphenous nerve, a terminal branch of the femoral nerve, at the mid-thigh. The block has become popularized as a way of providing analgesia to the knee and medial portion of the lower leg while avoiding quadriceps weakness, which is common with the femoral nerve block. The adductor canal (or subsartorial's canal) is generally defined as the area of the upper leg in which the sartorius muscle overrides the superficial femoral artery.

Indications: Surgery to the knee or lower leg involving the medial aspect of the calf and foot. It is also indicated as a supplement to a sciatic nerve block when complete anesthesia of the lower leg is desired.

3. Describe the Extraocular and intraocular Muscles with their nerve supply.

Ans: The extraocular muscles are the six muscles that control movement of the eye and one muscle that controls eyelid elevation (levator palpebrae). The actions of the six muscles responsible for eye movement depend on the position of the eye at the time of muscle contraction. The extraocular muscles include: the medial, inferior, and superior recti, the inferior oblique, and levator palpebrae muscles, all innervated by the oculomotor nerve (III); the superior oblique muscle, innervated by the trochlear nerve (IV); and the lateral rectus muscle, innervated by the abducens nerve (VI). The intraocular muscles include the ciliary muscle, the sphincter pupillae, and the dilator pupillae. The ciliary muscle is a smooth muscle ring that controls accommodation by altering the shape of the lens, as well as controlling the flow of aqueous humor into Schlemm's canal.