

The retina, due to its specific structure and intensity of biochemical processes that take place within it requires, in most species, dual blood supply. The choroid is an anatomical structure whose primary function is to ensure correct distribution of oxygen and nutrients in the retina. It covers almost the entire posterior hemisphere of the eyeball. It is characterised by a spongiform structure and its elements include blood vessels, nerves, and numerous pigment cells. The Bruch's membrane adjacent to the retina adheres to the externally located choriocapillary layer, i.e. the choriocapillaris. In most domestic animals, the reflective membrane is located externally relative to the choriocapillaris. In carnivores, it consists of polygonal cells containing reflective crystals responsible for reflecting light. Next comes the vascular layer (so-called Settler's layer – a layer of medium-diameter blood vessels and Haller's layer – containing larger-diameter vessels). The element separating the choroid from the sclera is the suprachoroidal layer.

The choroid provides for the external layers of the retina, photoreceptors, and pigmented epithelium that lack their own blood vessels. Apart from the nutritive function, the choroid also ensures proper thermoregulation, which is necessary to maintaining the correct function of the retina, one of the most metabolically active tissues in the organism. In human medicine, correlations between the choroid dimensions and the patient's age, sex, refraction disorders, axial length of the eyeball, strength of corneal refraction, as well as ethnic origin have been demonstrated. The overall clinical condition of the individual is important. In particular, diseases reducing the total plasma protein, and therefore leading to a decrease of the oncotic pressure, are of significance. This closely relates not only to retinal and choroidal water retention which affects their thickness, but also more severe conditions such as bilateral retinal detachment, pigmented epithelium detachment, or macular oedema. The choroid is susceptible to a wide range of factors.

However, no reports have been published discussing the impact of particular cardiac medicines on choroidal thickness and retinal blood supply. As an element of the cardiovascular system, the choroid may be susceptible to the effects of heart medication, in particular drugs affecting arterial blood pressure. The goal of the study is to perform a morphological and morphometric SD-OCT evaluation of the choroid and retina in dogs receiving the selected cardiac drug from the group of angiotensin-converting-enzyme inhibitors – enalapril. Changes in the thickness of the choroid and its respective layers as a result of long-term enalapril use may lead to changes in retinal blood supply, and consequently result in eyesight deterioration. The study will utilise the electroretinography to evaluate retinal function and optic coherence tomography to facilitate intravital, non-invasive evaluation of the morphology and morphometry of the posterior eyeball structures. Additional studies will include clinical, cardiological, and ophthalmic examinations conducted several times in the course of the experiment to evaluate the clinical condition of the animals, monitor the research process and the impact of the administered drugs on the animals.