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Transmission electron microscopy of the retina following thyroidectomy in rabbit

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Thyroid hormones play a crucial role in the neuroretinal maturation of the eye and central nervous system development. An experiment was conducted to survey the effects of thyroidectomy on rabbit retina. In this study, 10 male rabbits of New Zealand strips were divided into two groups of five animals each (control group and thyroidectomy group). Before surgery, the rabbits were maintained in 12-h light and 12-h dark. The animals were anesthetized with intra peritoneal injection of 10 mg/kg xylazine and 6 mg/kg ketamine, and bilateral thyroidectomy was performed. One and 2 weeks after surgery, the rabbits were sacrificed by humane methods. Then, retinas of the killed rabbits were isolated in the laboratory and examined by electron microscopy for evaluating cells and changes in inner segment, outer segment, outer limiting membrane, and outer nuclear layer. The result of this experiment showed vacuolization in inner section and endoplasmic reticulum of rabbit retina in group two. It was also observed that mitochondria of the inner segment of retina were larger and more circular than mitochondrial in control group; moreover, most of them had lost their crystal. The core in the control group was normal and had round to oval shape and distributed chromatin, but in thyroidectomy group, the mode of the nucleus was small and dark (pyknosis) and some nucleus had been destroyed. In our study, we focus on electron microscopic changes of retina following thyroidectomy that reflects us a new concept of cellular changes. In conclusion, this study showed that thyroidectomy affected retinal compounds such as in outer segment, inner segment, and outer nuclear layer, and ultimately leads to vision problems.

Biography

Ali Aliabadi has completed his Doctorate in Veterinary Surgery from Shiraz University. He has completed his studies on Orthopedic Surgery as Clinical Fellow in Munich Ludwig Maximilian University. He is an Assistant Professor of Veterinary Surgery. His research focuses on animal model in surgical pathology. He has published more than 14 papers in reputed journals.

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