



KEY WORDS

- ✓ Pineal Gland
- ✓ Vitamin D
- ✓ Melatonin
- ✓ Receptor of Vitamin D
- ✓ Serotonin
- ✓ Tryptophan hydroxylase 1
- ✓ Tryptophan hydroxylase 2

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Investigation of The Presence of Vitamin D Receptors in The Pineal Gland, Biochemical and Immunohistochemical Determination of Vitamin D Relationship with Serotonin and Melatonin Which Are Pineal Gland Hormones in Rats

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THESIS ABSTRACT

The role of tryptophan in the synthesis of serotonin and melatonin, the importance of TPH isoenzymes in these processes, and the relationship between vitamin D and the pineal gland are focused on in this study. Immunohistochemical staining in the pineal gland revealed the presence of the vitamin D receptor, and the effects of vitamin D on melatonin and TPH isoenzymes were demonstrated. Statistical data from expression intensity assessments in the control group showed that the vitamin D receptor and TPH isoenzymes exhibited moderate to strong expression. These findings aim to provide a new perspective on neurodegenerative diseases by examining expression differences and interactions between groups. Additionally, these data are supported by plasma ELISA results.

APPLICATION AREAS OF THE THESIS RESULTS

As a result of the research, the presence of the vitamin D receptor (VDR) in the pineal gland has been demonstrated for the first time, and the effects of vitamin D on melatonin production have been revealed. This study provides the first evidence of the effects of vitamin D on TPH isoforms in the pineal gland. Additionally, the impact of melatonin on sleep regulation and the role of melatonin supplements in sleep disorders are emphasized. Calcification in the pineal gland is a condition particularly associated with neurological diseases such as Alzheimer's, and the underlying mechanisms of this condition are still being investigated. The effects of Vitamin D and calcium channels may be crucial in understanding in the mechanisms of calcification in the pineal gland. Furthermore, the connection between vitamin D imbalances and mood disorders and psychiatric diseases may be better understood, and this research will contribute to a deeper exploration of these relationships.

ACADEMIC ACTIVITIES

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