ARTIFICIAL INTELLIGENCE SUPPORTED SURGERY DECISION FOR ORBITAL INFECTIONS

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THESIS ABSTRACT

Since surgery for abscesses in orbital infections can only be performed in certain centers, it is important that the surgical decision is made at the right time and performed correctly. For physicians facing this situation, having an artificial intelligence-based decision support system can be helpful in providing the right treatment to the right patient at the right time. Our study examined data from patients with orbital cellulitis and orbital abscesses who recieved medical or surgical treatment. Data processed with supervised learning algorithms in machine learning were used to classify medical or surgical treatment, and to classify medical treatment, surgical treatment, and healthy individuals. The most successful algorithms in all classifications were the linear support vector machine and random forest algorithms. The data in our study were found to be successfully classified.

APPLICATION AREAS OF THE THESIS RESULTS

With the results of our thesis, a decision support system can be established using machine learning to decide on surgical or medical treatment for orbital infections.

ACADEMIC ACTIVITIES

Kıvanç, S. A., Akova, B., & Kıvanç, M. (2024). Effects of Gallic Acid on Ocular Biofilm, Produced By Coagulase-Negative Staphylococci Obtained from Ocular Surface. *2024 ASCRS Annual Meeting*, Boston, Amerika Birleşik Devletleri.
Kıvanç, S. A., Akova, B., & Kıvanç, M. (2023). Effects of the Dibenzofuran, Usnic Acid, on Inhibition of Ocular Biofilm Formation Due to Coagulase-Negative Staphylococci. *Medical science monitor : international medical journal of experimental and clinical research*, 29, e940266.
Kıvanç, S. A., Akova, B., & Kıvanç, M. (2022). Do Lactobacillus rhamnosus-Originated Probiotic and Parabiotic Have Inhibitory Effects on Intraocular Lens Biofilm?. *Experimed*, 12(3):103-107.

KEY WORDS

- ✓ Orbit
- ✓ Abscess
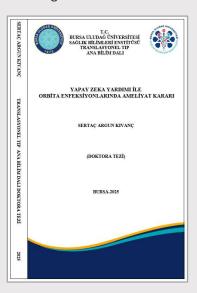- ✓ Machine learning
- ✓ Artificial intelligence
- ✓ Surgery

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