

Progress in the prediction of epilepsy surgery

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An example of a sheet of Rorschach test to analyze a person's personality characteristics.

According to this research, developed by researchers of the UPM, CSIC and the Princesa Hospital, personality style, intelligence quotient and hemisphere of seizure origin are factors that would help to predict successfully these surgeries, what would be helpful for surgeons. Researchers reached these conclusions by using predictive models based on machine learning techniques.

Epilepsy surgery is effective in reducing both number and frequency of

seizures, particularly in patients with [temporal lobe epilepsy](#) (TLE). However, a significant proportion of these patients continues suffering seizures after surgery.

In order to have information about the results before surgery, [researchers](#) from the Computational Intelligence Group of the Schools of Computing UPM assessed the influence of a battery of medical and psychological factors using [predictive models](#) developed from machine learning approaches.

They have identified three "very relevant" elements: the hemisphere of seizure origin, [intelligence quotient](#) and personality style (applying the Rorschach test). Researchers have obtained a success rate of 90% in terms of predicting the outcome after surgery by using advanced mathematical models for its combination.

From the researcher's point of view, this study opens the door for integration of complex mathematical models in previous assessment of surgeries. The team of medical assessor will have numerical results about the success of the surgery which are known as decision support tools.

More information: Armananzas, R. et al. (2013). Machine learning approach for the outcome prediction of temporal lobe epilepsy surgery, *PLoS ONE*, 8(4), e62819 APR 30 2013.

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