

# Abnormal EEG in Gilles de la Tourette Syndrome

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## Background:

Patient with Gilles de la Tourette Syndrome (GTS) have an 18-fold increased risk of epilepsy. On the other hand, first presentation of tic disorder may mimic seizures, especially focal epilepsy. Epileptiform discharge found in EEG in patients with tic disorders may lead to the unnecessary introduction of antiepileptic medications. The aim of this work was to show the incidence and characteristics of EEG abnormalities in patients with GTS who do not have epilepsy as a comorbidity.

## Methods:

We analyzed retrospectively the database of 386 patients (292 males, mean age was 16, range 5-66, SD 9,5 years) with GTS. Four patients who had been diagnosed with epilepsy were excluded from the analysis. EEG was performed in different outpatient clinics and analyzed by different clinicians who were licensed in EEG. Four groups of EEG results were distinguished: i) normal; ii) generalized epileptiform discharge (sharp waves, polyspikes, sharp-and-slow wave complex); iii) focal epileptiform discharge; iv) abnormal result without epileptiform discharge (slow waves e.g. theta and delta waves). The statistical analysis was made in MS Excel.

## Results:

EEG results were available at initial evaluation in 32% of patients (122 of 386, 86 males). Age groups were as follows: 74 children (up to 11 years old), 22 adolescents (aged 12 to 17) and 26 adults. Mean age was 13, range 5-43, SD 7,2 years. The abnormal findings were recorded in 43% of individuals (n=53). Details are shown on the diagram.

## Conclusions:

1. EEG is frequently performed in patients with early GTS to differentiate tics from other hyperkineses.
2. Nearly half of the GTS patients with no evidence of epilepsy had abnormal EEG and most of them showed EEG changes typical for epilepsy.
3. Clinicians should be aware of abnormalities in EEG in differentiating tic disorders from epilepsy.

