



Retinal markers of therapeutic responses in major depressive disorder: Effects of antidepressants on retinal function

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Highlights

- ERG as a tool for predicting and monitoring response to antidepressants.
- Study of the effects of antidepressants on retinal function.
- A step towards identifying retinal markers of response and therapeutic monitoring.

Abstract

Background

One goal of research into major depressive disorder (MDD) is to develop markers to predict and monitor the response to psychotropic treatments. The retina is endowed with a complex neurotransmission system, composed of the main neurotransmitters involved in the pathophysiology of MDD. The retina is therefore a relevant site of investigation for the identification of reliable and robust markers. However, the effects of antidepressants on the human retina are poorly studied.

Here, we seek to study the potential specific effects of various antidepressants on retinal function in MDD patients.

Methods

We assessed retinal function using flash (fERG), pattern (PERG) and multifocal (mfERG) electroretinogram in 19 MDD patients treated using antidepressants at baseline and at weeks 4, 8 and 12.

Results

We observed reduced b-wave amplitude of photopic fERG 3.0 in patients treated with Selective Serotonin Reuptake Inhibitor (SSRI) in comparison with patients treated with Serotonin-Norepinephrine Reuptake Inhibitor (SNRI) or Tricyclic Antidepressant (TCAD). We also showed that SNRIs were associated both with a decrease in PERG P50 implicit time and an increase in fERG 3.0 b-wave amplitude. TCADs were associated with an increase in fERG flicker 3.0 a- and b-wave amplitude.

Conclusions

This is the first study in real-life conditions to show a specific effect of various antidepressants on retinal function evaluated by electroretinogram. Further investigations should be led to specify the effects of antidepressants on ERG in order to isolate reliable and reproducible markers for predicting and monitoring the response to antidepressants.

Keywords

Major depressive disorder

Electroretinography

Retina

Synaptic transmission

Antidepressants

Biomarkers