

Abstract

Patients with Alzheimer disease often report presence of neuropsychiatric symptoms even before the presence of cognitive decline itself. The most reported ones are anxiety, depression, emotional dysregulation, apathy and agitation.

The aim of this work was to investigate the presence of anxiety- and depression-like behaviour, and eventually dysregulation of social behaviour and emotional memory impairment via behavioural approach on the TgF344-AD (tg) rat model.

Results show that tg rats display anxiety-like behaviour in several different tests and parameters. Tg rats of the age of 10 months spent more time around the wall and less in the middle of the arena. Surprisingly, this anxiety-like phenotype has not been demonstrated in the older (14 months) rats. Tg rats spent also less time peeking out from closed arms and looking down from open arms. Moreover, tg rats displayed anxiety-like behaviour in all observed parameters in the Social interaction test. Social deficit expressed as a smaller investment of time into the anogenital and non-anogenital exploration and following of counterparts. In the Forced swim test, tg rats did not spend more time immobile, thus depression-like phenotype has not been demonstrated in these animals. Moreover, 10 months old tg rats spent surprisingly less time immobile. There was no impairment in emotional memory in tg rats of the age of 10 months. Surprisingly, 14 months old tg rats showed enhanced emotional memory in one of the two followed parameters.

TgF344-AD rats have shown anxiety-like phenotype not only by the age of 14, but also by the age of 10 months, regardless of sex. In contrast, a depression-like phenotype was not present in the same cohort of animals according to our data.

Keywords: Alzheimer's disease; animal model; anxiety-like behaviour; depression-like behaviour; TgF344-AD rats