Altered core body temperature and activity in triple-transgenic (3xTgAD) Alzheimer’s disease mice

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Alterations in energy balance such as changes in body weight and food intake are frequently observed in Alzheimer’s disease (AD) patients. In triple-transgenic (3xTgAD) mice we have also observed changes in body weight, food intake and metabolic rate. Core body temperature and activity are also reported to be increased in AD patients, but the cause and consequences of these changes are unknown. We therefore characterised circadian patterns of body temperature and activity in 3xTgAD mice. Core body temperature and activity were monitored in 8-month-old 3xTgAD and non-transgenic (Non-Tg) control mice by remote radiotelemetry for 2 months. To establish whether any changes in body temperature were mediated via the cyclooxygenase pathway groups of 3xTgAD and Non-Tg mice were treated with ibuprofen. Core body temperature was elevated in 8-10-month-old 3xTgAD mice and activity was increased at 10 months of age. Elevations in temperature did not appear to be due to increased food intake and were not cyclooxygenase dependent, since the temperature rise was not abolished by chronic ibuprofen treatment. These data demonstrate an increase in core body temperature and activity in 3xTgAD mice, although the underlying mechanisms and relevance to human AD remains to be tested.