The impact of isolation has become a critical worldwide issue since the outbreak of the COVID-19 pandemic. In nursing homes, the physical distance measures forced the separation of old patients in restricted areas and rooms to avoid the spread of the virus. Similarly, older people living at home face severe restrictions as the best preventive strategy to protect their lives before vaccination is possible/effective.

At the translational level, we recently demonstrated the impact of isolation [1] in male 3xTg-AD mice for Alzheimer’s disease [2] and the increase of gross and fine motor activity. The latter was monitored through nesting [3,4], a species-typical ethological behavior used as a naturalistic approach to measuring animals’ well-being [3,5] and abilities in instrumental tasks [6,7].

REFERENCES.

INTRODUCTION

In the present work, we scored the nests and the nest-building process in old female mice under the effects of intrinsic (genotype, 3xTg-AD vs. C57BL/6J) and extrinsic (environment, forced isolation vs. social environment) factors.

METHODS

For this purpose, nests of male and female mice with normal (C57BL/6) and AD-pathological aging were studied using paper nesting material and our 3-days protocol [7]. Nests were scored according to the ordinal Beaucor Scale [6] (results not shown), whereas the temporal progress of nests construction was determined with a new proposed parametric measurement analog (Sciforum DEPS). Measuring Temporal Patterns of the Nest-building Process in Mice for Animal Welfare and Disease Monitoring, Giménez-Lloret and Ruiz de Molina-García, Proceedings, analyzed with free software Kneo 3.0 for determination of T1 (size of the nest at 24h), N2 (size at 48h) and N3 (size at 72h).

RESULTS

1. The results confirmed previously described [7] genotype differences, with worse nests in 3xTg-AD mice living under standard housing conditions than non-transgenic counterparts.

2. However, the genotype effect was lost under isolation, mainly due to isolated 3xTg-AD females enhancing nest-building behavior, while isolated non-transgenic counterparts were less efficient at 24h.

CONCLUSIONS

Temporal patterns of the nest-building process are important to be considered when measuring the effects of intrinsic and extrinsic factors.