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Enriched developmental biology molecular pathways impacts on antipsychotics induced weight gain

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Abstract

Objective: Psychotropic induced weight gain (PIWG) may lead to increased risk for cardiovascular diseases, metabolic disorders and, ultimately, treatment discontinuation. The hypothesis tested in the present contribution was that PIWG might be genetically driven. The analysis of complete molecular pathways may grant a sufficient power to tackle the biologic variance of PIWG. The identification of a genetic makeup at risk for PIWG could characterize the subjects at risk for this possible severe side effect and helps move a step forward in the direction of personalized treatment in psychiatry.

Methods: A genetic sample from the CATIE trial (n=765; M=556, mean age = 40.93±11.03) treated with diverse antipsychotic drugs was investigated. A molecular pathway analysis was conducted in an R environment for the identification of the molecular pathways enriched in variations associated with PIWG.

Results: The developmental biology molecular pathway was found to be significantly (p.adj= 0.018) enriched in genetic variations significantly ($p<0.01$) associated with PIWG. 18 genes were identified and discussed. The developmental biology molecular pathway is involved in the regulation of beta-cell development, and the transcriptional regulation of white adipocyte differentiation. Interestingly, this finding was a result of a hypothesis – free approach.

Conclusion: Results from the current contribution correlates with previous evidence and it is consistent with our earlier result on the STAR*D sample. Furthermore, the involvement of the beta-cell development and the transcriptional regulation of white adipocyte differentiation pathways stresses the relevance of the peripheral tissue rearrangement, rather than increased food intake, in the biologic modifications that follow psychotropic treatment and may lead to PIWG. Further research is warranted.

Biography

Antonio Drago has completed his PhD from Modena University and postdoctoral studies from Bologna University. He has published more than 45 papers in reputed journals and has been serving as an editorial board member of repute.

Publications

- Pharmacogenetics of antidepressant response: An update
- AKAP13, CACNA1, GRIK4 and GRIA1 genetic variations may be associated with haloperidol efficacy during acute treatment
- HTR2A gene variants and psychiatric disorders: a review of current literature and selection of SNPs for future studies.
- Videoconferencing in psychiatry, a meta-analysis of assessment and treatment.
- A molecular pathway analysis informs the genetic background at risk for schizophrenia

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