

ESCITALOPRAM CAN RESCUE PARTLY ABNORMALITIES OF RHYTHMIC SYSTEM IN MAJOR DEPRESSIVE PATIENTS AFTER 8 WEEKS TREATMENT

S.-X. Li¹, L.-J. Liu¹, L. Gao², X.-F. Wang³, J.-T. Zhang⁴, L. Lu¹

¹National Institute on Drug Dependence, Peking University, Beijing, ²Jining Mental Hospital, Jining, ³Rong Jun Hospital, Baoding, ⁴Beijing Daxing Bughouse, Beijing, China

Objective: There are strong links between circadian disturbance and some of the most characteristic symptoms of clinical major depressive disorder (MDD). However there are no published studies of changes in expression of clock genes or of other neuropeptides related to circadian-rhythm regulation, which may influence recurrent susceptibility after treatment with antidepressant in MDD.

Methods: Blood samples were collected from twelve healthy controls and twelve male major depressive patients pre- and post- treated with escitalopram for eight weeks at 4-hour intervals for 24 hours. Outcome measures were the relative expression of mRNA of clock genes (*hPERIOD1*, *hPERIOD2*, *hPERIOD3*, *hCRY1*, *hBMAL1*, *hNPAS2* and *hGSK-3beta*) and the levels of serum melatonin, Vasoactive Intestinal Peptide (VIP), cortisol, Adrenocorticotrophic Hormone (ACTH), Insulin-like Growth Factor-1(IGF-1) and growth hormone (GH) in twelve healthy controls and twelve pre- and post- treated MDD patients.

Results: Compared with healthy controls, MDD patients showed disruptions in diurnal rhythms of expression of *hPERIOD1*, *hPERIOD2*, *hCRY1*, *hBMAL1*, *hNPAS2* and *hGSK-3beta*, along with disruptions in diurnal rhythms of release of melatonin, VIP, cortisol, ACTH, IGF-1, and GH. Several of these disruptions (*hPER1*, *hCRY1*, *melatonin*, *VIP*, *cortisol*, *ACTH*, and *IGF-1*) persisted after eight weeks escitalopram treatment, as did elevation of 24-hour levels of VIP and decreases in 24-hour levels of cortisol and ACTH.

Conclusion: These persisted neurobiological changes may play a role in MDD symptoms that are thought to contribute to recurrence vulnerability and in maintenance therapy for a long term.