Plasma paroxetine level is independent of the change in plasma interleukin-6 level in remitted patients with major depressive disorder

Reiji Yoshimura
https://orcid.org/0000-0002-7637-5576
Naomichi Okamoto
https://orcid.org/0000-0003-2791-8113
Yuki Konishi
https://orcid.org/0000-0001-9684-677X
Atsuko Ikenouchi
https://orcid.org/0000-0001-8328-4608

Department of Psychiatry, University of Occupational and Environmental Health, Kitakyushu, Fukuoka 8078555, Japan

Received: 26/08/2020– **Accepted:** 17-11-2020

DOI: 10.15761/0101-60830000000282

Yoshimura R / Arch Clin Psychiatry. 2021;48(1):71-72

Keywords: Major depressive disorder; paroxetine; interleukin 6; plasma

To the Editor

Several meta-analyses have been reported that plasma interleukin 6 (IL-6) concentration is significantly higher in patients with major depressive disorder (MDD) compared with healthy controls. We previously reported that plasma IL-6 level was associated with responses to antidepressant drugs in patients with MDD[1-5]. Moreover, we have demonstrated that plasma IL-6 level is associated with the prefrontal thickness, hippocampal volume, and microstructural changes in the inferior fronto-occipital fasciculus in drug-naïve patients with MDD[6,7]. From the above findings, it may be surmised that IL-6 plays a role in the pathophysiology of MDD. Since we previously reported that plasma levels of fluvoxamine, a selective serotonin reuptake inhibitor (SSRI), did not influence plasma IL-6 concentrations[3], we also investigated a preliminary study to examine the association between plasma paroxetine, anther SSRI, and IL-6 concentrations in patients with MDD. The study protocol and procedures were approved by the Ethics Committee of the University of Occupational and Environmental Health, Kitakyushu, Fukuoka, Japan. Written informed consent was obtained from all subjects. The study participants met the following criteria: 1) diagnosed with MDD according to the Diagnostic and Statistical Manual, fifth edition; 2) received paroxetine monotherapy at least 8 weeks; 3) were considered to be in remission for at least 8 weeks (Hamilton Rating Scale for Depression-17 (HAMD17) score ≤7) after starting paroxetine monotherapy (mean±standard deviation=27.1±9.7 mg/day). Eighteen individuals who had been diagnosed with MDD, but were in remission (men/women, 7/11; age, 46.4±9.3 years), were enrolled in this study. The HAMD17 score was calculated at baseline and at 8 weeks of initiating paroxetine therapy (23.3±3.3 and 5.6±1.2, respectively). Blood sampling was performed twice—before paroxetine treatment and 8 weeks after initiating treatment. The plasma levels of paroxetine and IL-6 were measured as previously described [5,6]. Plasma IL-6 level did not change before and 8 weeks after paroxetine treatment (before; 1.41±0.51 pg/mL; at 8 weeks, 1.40±0.29 pg/mL; paired t-test: p=0.913). Plasma IL-6 level and paroxetine concentrations showed no correlation at 8 weeks of treatment (Pearson's correlation coefficient: r=0.110, p=0.663; Figure 1). We have previously reported that selective serotonin reuptake inhibitors, including paroxetine and sertraline, decreased plasma IL-6 level in patients with MDD, and that this decline is associated with the implement of depressive state[5]. However, the result could not be confirmed in the patients with MDD treated with paroxetine, but who were in remission. Moreover, plasma paroxetine level did not influence plasma IL-6 level, which was in accordance with our previous results of fluvoxamine[3]. Thus, the association between the response to paroxetine, plasma paroxetine level, and plasma IL-6 level should be further investigated.

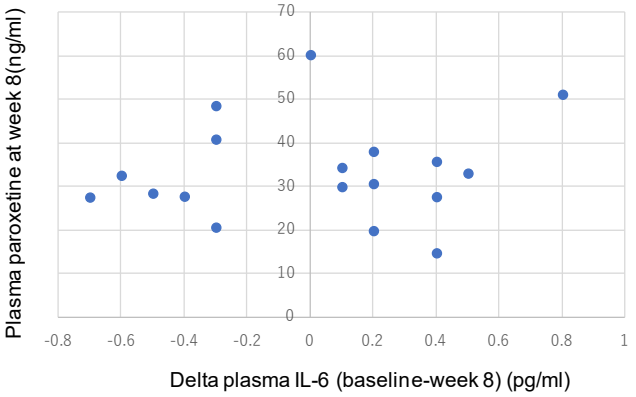

Figure 1. Plasma paroxetine concentration and the change in plasma IL-6 level.

Acknowledgement

None.

Conflict of Interest Statement

All authors did not have any conflict of interest to declare.

Address for correspondence: Reiji Yoshimura, Department of Psychiatry, University of Occupational and Environmental Health, Kitakyushu, Fukuoka 8078666, Japan, Tel: +81936917253; Fax: +81936924894; E-mail: yoshi621@med.uoeh-u.ac.jp

Funding Sources

None

Author Contributions

RY planned the project and performed as a director, write first daft and final draft. NO, YK, and AI performed sampling and its assay.

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