

## **Letter to Editor. Depression and cytokines – a different perspective.**

### **Author's response.**

Alina Wilkowska, Jerzy Landowski

Department of Adult Psychiatry, Medical University of Gdansk

Thank you for the interest in our paper [1] and comments published in the Letter to Editor by Celik et al. [2].

We fully agree that endocrine factors and physical exercise influence cytokine concentrations and that these aspects should be taken into account while interpreting the results.

In our study we did not examine the effect of physical exercise due to specific methodology – cytokine concentrations were measured on 3<sup>rd</sup> and 5<sup>th</sup> day of myocardial infarction in hospitalized patients whose physical activity was significantly reduced at that time. All included patients, as stated in the original paper, had their blood samples taken between 8 a.m. and 10 a.m. It is also worth mentioning that despite limited physical activity a group of patients had higher cytokine concentrations which strengthens our conclusions.

Specific aspects of gender differences, reproductive cycle phases and using hormone medications (including contraceptives) were analyzed by our team in relation to metabolism of xenobiotics [3]. They were also considered in studies on neurotransmitters, endocrinological activity and inflammatory processes [4]. Present publication describes the age group which in case of women corresponds to peri – and postmenopausal period. Most of included women were in postmenopausal period, the rest of them were perimenopausal and it was difficult to determine their cycle phase. That is why we did not include detailed characteristics of their endocrinological status. Among cytokines analyzed in our study, only IL-6 concentration changes due to menstrual cycle were mentioned in few publications. Some differences were observed between follicular and luteal phase and between both of these phases and postmenopause, although they were not significant [5]. For that reason we think that at least in case of IL-6, menstrual cycle phase or menopause should not have major effect on the analysis of the results.

Our conclusions are therefore inclusive for the studied group. It would be definitely interesting to analyze the effect of the mentioned factors in other study populations.

### References

1. Wilkowska A, Pikuła M, Rynkiewicz A, Wdowczyk-Szulc J, Trzonkowski P, Landowski J. *Increased plasma pro-inflammatory cytokine concentrations after myocardial infarction and the presence of depression during next 6-months*. Psychiatr. Pol. 2015; 49(3): 455–464.
2. Celik C, Oznur T, Ozdemir B. *Letter to Editor: Depression and cytokines – a different perspective*. Psychiatr. Pol. 2016; 50(4): 885–886.
3. Cubala WJ, Wiglusz M, Burkiewicz A, Gałuszko-Wegielnik M. *Zolpidem pharmacokinetics and pharmacodynamics in metabolic interactions involving CYP3A: sex as a differentiating factor*. Eur. J. Clin. Pharmacol. 2010; 66(9): 955.
4. Cubala WJ, Landowski J. *C-reactive protein and cortisol in drug-naïve patients with short-illnessduration first episode major depressive disorder: possible role of cortisol immunomodulatory action at early stage of the disease*. J. Affect. Disord. 2014; 152–154: 534–537.
5. Sikora J, Mielczarek-Palacz A, Kondera-Anasz Z, Strzelczyk J. *Peripheral blood proinflammatory response in women during menstrual cycle and endometriosis*. Cytokine 2015; 76: 117–122.