

DEPRESSION, ANXIETY AND QUALITY OF LIFE IN PATIENTS WITH SYNCOPE

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Dear Editors,

In our everyday practice, we have noticed a connection between psychological disorders with positive personal history for syncope and its lifetime numbers. A lifetime incidence of vasovagal syncope in the general population vary between 3 and 39% of which approximately 25% suffer from certain psychiatric disorder (mostly anxiety and depression) (D'Antono et al. 2009). Although this type of syncope is not associated with increased risk of sudden death, its connection with psychological disorder development, just as impaired quality of life, has been documented in numerous publications in the last 20 years (Ventura et al. 2001, Kouakam et al. 2002, Gracie et al. 2006, Ng et al. 2019). Some studies show the positive effect on syncope incidence if they were treated with psychoactive drugs or different types of psychotherapy (Alhuzaimi et al. 2018). Low quality of life can be noticed in children with frequent syncope episodes, worse than children with diabetes mellitus, asthma, structural heart disease or chronic kidney disease (Sun et al. 2013). The level of anxiety and depression declines while the quality of life slightly increases with years from the first syncope episode in one's life (Ng et al. 2019).

There are certain indications that centrally active sympathetic neuromodulatory neurotransmitters have a direct impact on vasovagal syncope development. Serotonin from the nucleus tractus solitarius and the anterior hypothalamic region is found to be the most probable suspect. Decreased serotonin levels can lead to sudden blood pressure and heart rate drop in actively bleeding animal models. Because of possible somatization, some studies have shown the benefit of paroxetine use to prevent syncopal episodes (Alhuzaimi et al. 2018). Besides its anti-depressive effect, a significant improvement in the quality of a patient's life was seen. Vasodepressor type of syncope is the most common type, especially in older age groups (Brignole et al. 2000). As far as we are aware, there are no studies that compare the patients' psychological status between different types of vasovagal syncope.

In the current study, we included a total of 103 routinely examined patients (83 female, 20 male) due to positive syncope history, who were being treated at the Department of Cardiovascular Diseases, University Hospital Center Zagreb. All patients who were posi-

tively tested on the tilt-up table tests during one year period (May 2018 to May 2019) were requested to complete standardized psychological self-report measures of depression, anxiety, and quality of life. We used the Beck Depression Inventory – 2nd Edition (BDI-2), the Beck Anxiety Inventory (BAI), and the World Health Organization Quality of Life – BREF (WHOQOL-BREF). All three questionnaires had satisfactory levels of internal reliability (i.e., Cronbach Alpha coefficients). The tilt-up table test was done according to the standard protocol. Each patient signed informed consent. We also examined socio-demographic (e.g., age, gender, number of children, level of education, marital status) and anthropometric (BMI) parameters. Based on the results of the tilt-up table test, we divided patients into three main categories in line with the VASIS syncope classification. The first category were patients with mixed type of syncope (32 patients). The second group were patients with cardioinhibitory syncope, with or without asystole (15 patients) and the third group were patients with vasodepressor type of syncope (55 patients). Statistical analysis of our data included descriptive statistics, appropriate correlation coefficients, and the Kruskal-Wallis test.

Mean age of the patients was 23 years (min 18, max 74 years), while mean BMI was 21.33 kg/m² (min 16.91, max 33.59 kg/m²). Nine patients (9%) received elementary education, 65 (64%) had a high-school degree, while 28 (27%) held a university degree. Twenty patients (20%) were married, while the rest (80%) were either single, divorced, or widowed. Seventy percent of the patients had 6 or less episodes of syncope during their lifetime, while the average age of the first syncope experience was 19.48 years. The average total scores on the psychological self-report scales were as follows: BDI-2 (11.13), BAI (15.22), and WHOQOL-BREF (3.86). Spearman's correlations showed a significant negative association between the BDI-2 total score and the patients' age ($r=-0.25$, $p<0.05$), and also a strong positive connection between anxiety and depression level ($r=0.68$, $p<0.01$). There was no significant correlation between the number of syncope episodes and the scores on the self-report scales ($p>0.05$). The Kruskal-Wallis test revealed no significant differences between vasovagal syncope types with regard to the BDI-2, BAI, and WHOQOL-BREF total scores ($p>0.05$).

Although the loss of consciousness is a common symptom of all syncope types, cardioinhibitory syncope could theoretically lead to serious neuron damage (due to ischemia during asystole or tissue hypoxia during severe bradycardia - <40 bpm). Despite these mechanisms, loss of consciousness perception and the fear of syncope recurrence gradually seems to lead to similar anxiety and depression levels in all syncope types. Also, quality of life was comparable between the groups. Mentioned depression and anxiety levels were in the mild to moderate spectrum, and the quality of life was reasonably high. Moreover, the BDI-2 average score was well below the threshold suggestive of the presence of depression in the Croatian population (Jakšić et al. 2013). Probably because of the young age of our patients and low average number of experienced syncope episodes, the levels of anxiety and depression were rather low, and their quality of life was still well preserved. In some other studies, quality of life was inversely proportional to the syncope number during the lifetime, but possibly because of the abovementioned reasons, we failed to prove this hypothesis. Discovering how serotonin levels can impact the autonomic nervous system reflexes, levels of anxiety and depression could be dependent on the central nervous system maturation. Our research confirmed this statement by showing a significant negative correlation between the BDI-2 score and the patients' age. Because of many combined factors with a serious involvement in nervous system maturation during adolescence, it is hard to determine whether syncope incidence and its number have a direct modulatory effect on the psychological profile of human beings (Lahousen & Kapfhammer 2018). Because of the aforementioned, the control groups are very difficult to obtain. Additionally, recent scientific efforts have been aimed at elucidating the common underlying mechanisms of various somatic and psychological disorders (Jakovljević & Borovečki 2019). In conclusion, despite some previous studies showing the connection between syncope incidence and psychological disorder and impaired quality of life, we only demonstrated a mild-to-moderate anxiety level in young adults with syncope. Syncope incidence in the late adolescent / young adult age probably did not have the supposed effect on the quality of life and depression levels because of the almost finished central nervous system maturation. Between the vasovagal syncope types, no differences were found in psychological disorder incidence.

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