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Neuropathic Pain and Fear of Hypoglycemia in Patients with Diabetes Mellitus

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Background & Aims.

Pain in diabetic neuropathy and psychological aspects associated with the chronic treatment of diabetes mellitus (DM) have a major impact on patients' quality of life. The fear of hypoglycemia (specific phobia) can lead cognitively to anxiety and depression, and behaviorally to an attempt to keep blood sugar disproportionately high. Therefore, we wanted to investigate the differences in fear of hypoglycemia in the DM group with and without pain and its relationship to anxiety and depression.

Methods.

N=34 patients with DM (92% DM1 and 8% DM2), a total of 56% of the subjects were male, with average age = 44.23 (min 20-77 max), length of education =14.88 (min 10-21max), duration of illness =17.81 years (min3-48max), with average HbA1c = 7.41 (min 2.20-14.50max), from which 38.20% used insulin pumps, was psychologically assessed at the Psychology Dpt of the 3rd Faculty of Medicine, Charles University and University Hospital Kralovske Vinohrady, Prague. Patients were divided according to the presence of pain in the visual analog scale (VAS), 50% of patients (n=17) had neuropathic peripheral pain with its average intensity 4.90 (VAS min 1.70-8.40 max), 50% of patients (n=17) had no pain. They filled out the questionnaires that determined the degree of neuropathic pain (Neuropathic Pain Symptom Inventory, NPSI), fear of hypoglycemia (HFS-II), depression (BDI-II) and anxiety (GAD- 7). Parametric tests (Kruskal–Wallis, Spearman's r) were performed for statistic processing.

Results.

The NPSI neuropathic pain measure differed borderline significantly between groups, ($X^2=3.7203$, $p=.0504$): the pain group score was found to be higher (Me= 15.30) than the no pain group score (Me = 3.17).

Fear of hypoglycemia (HFS-II) was significantly different between groups, ($X^2=3.6711$, $p=0.0500$): it was found that the score of the pain group was higher (Me= 42.00) than the score of the no-pain group (Me = 16.00).

The level of HbA1c did not reach significant differences between groups, ($X^2=0.4516$, $p=0.5016$), although it was found that the score of the pain group was higher (Me= 8.50) than the score of the no-pain group (Me=7.00).

Fear of hypoglycemia (HFS-II) correlates significantly strongly positive with depression $r_s=0.7304$, $p<.0001$ and with anxiety $r_s=0.6189$, $p<.0001$. Depression can explain 56% ($R^2=0.557$) and anxiety 47% ($R^2=0.468$) of the variability of fear of hypoglycemia (HFS-II) in this clinical group.

Conclusions.

Diabetes mellitus patients with neuropathic pain who have a great fear of hypoglycemia may be at risk of developing other anxiety and depressive comorbidities due to the loss of control over the disease and thus lack of motivation for treatment.

Ethical Permissions

All patients signed informed consent and the research was approved by the ethics committee EK-VP/36/0/2021 Relevance for Patient Care. Psychotherapy should have been part of multidisciplinary care for patients with DM with neuropathic pain.



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