Abstract

Introduction: Major depressive disorder in diabetic individuals represents a multifactorial phenomenon resulting from interactions between biological and psychosocial factors, which may intensify the probability of developing type 2 diabetes mellitus (T2DM) in otherwise healthy individuals. Case Summary: A case of T2DM is reported in a 38-year-old woman suffering from major depressive disorder who was treated successfully with individualised homoeopathic medicines. The patient reported to the Lifestyle Disorders clinic of Homoeopathic Hospital, Noida, with recently diagnosed diabetes of 8 months. After individualised homoeopathic treatment, the patient’s fasting plasma glucose, postprandial glucose, HbA1c levels, fasting plasma insulin and Hamilton Depression Rating Scale score were reduced within 6 months. The findings in this case report are encouraging and provide evidence in supporting the effectiveness of individualised Homoeopathy in reducing hyperglycaemia in a patient with major depressive disorder.

Keywords: Homoeopathy, Lifestyle disorder, Major depressive disorder, Natrum muriaticum, Type 2 diabetes mellitus

INTRODUCTION

Depression is known to be the single largest contributor to global disability and in India, according to National Mental Health Survey 2015–16, nearly 15% of Indian adults need active intervention for one or more mental health issues. One in every 20 Indians suffers from depression. Depression might influence both the occurrence and consequences of type 2 diabetes mellitus (T2DM). Major depressive disorder in diabetic individuals represents a multifactorial phenomenon resulting from interactions between biological and psychosocial factors, which may intensify the probability of developing T2DM in otherwise healthy individuals. It is noted that people with moderate and severe depressive symptoms at baseline have a 2.3 times higher risk of developing T2DM. Individuals with newly diagnosed diabetes were 30% more likely to have a prior history of depression as compared to people without diabetes. The prevalence of depression in diabetics varies from 8.5% to 27.3%.

Monoamine oxidase inhibitor use is limited by the possible severity of the induced hypoglycaemia, induced weight gain and required diets. The tricyclic antidepressants may lead to hyperglycaemia, an increase in carbohydrate craving and impaired memory. An independent role of depressive symptoms has been established in the development of diabetes in populations with low educational attainment. Furthermore, patients with newly diagnosed T2DM tend to have a reduced mental quality of life and an elevated depression score. Depression negatively impacts the quality of life in diabetic population and enhances chances of mortality in T2DM. Depression in T2DM seems to be predominant more in the northern states as compared to the southern states of India. Age above 50 years, female gender, low literacy rate, lower socioeconomic status and duration of T2DM >2 years show a statistically significant association between diabetes and depression. India ranks second in terms of newly detected cases of diabetes and has earned the moniker as the diabetes capital of the world. The cost-effectiveness of homoeopathic treatment in such diabetes cases with depression imposes a

How to cite this article: Nahar K, Kaushik S. Homoeopathy for management of type 2 diabetes mellitus in a patient of major depressive disorder - A case report. Indian J Res Homoeopathy 2021;15:55-61.
Nahar and Kaushik: Homoeopathy for management of type 2 diabetes mellitus in a patient of major depressive disorder ‑ A case report

direct relation to the reduction in medical expenses related to its long-term complications and improvement in the quality of life of patients suffering from this silent killer. This is the reason why Homoeopathy can be viewed as a substitute for traditional strategies of treatment.

The following case was diagnosed with major depressive disorder with T2DM, with high fasting and postprandial blood glucose levels and the patient was receiving oral hypoglycaemic drugs at the time of the homoeopathic consultation. The evolution of the case under homoeopathic treatment is presented here. The uniqueness of this case is that the patient showed massive improvement in the diabetic profile parameters including Homeostatic Model Assessment for Insulin Resistance (HOMA-IR) which is computed with the formula of fasting plasma glucose (FPG) (mmol/l) times fasting serum insulin (mU/l) divided by 22.5 \[11\] and Hamilton Depression Rating Scale (HDRS) score which explores the role of Homoeopathy in combating depression with insulin resistance.

This case has been reported according to HOM-CASE CARE guidelines.

**CASE REPORT**

A 38-year-old female reported to the Lifestyle Disorder Clinic in Dr. DP Rastogi Central Research Institute for Homoeopathy, Noida, on 19 August 2017 with diagnosis of major depressive disorder for 2 years and newly diagnosed T2DM in the last 8 months. She presented with chief complaints of polyuria, polyphagia and polydipsia. There was uncontrolled hyperglycaemia along with weight loss, blurring of vision, generalised weakness, itching in the whole body and pain in bilateral calf muscles. There was a history of repeated upper respiratory tract infections (URTIs), fatigue and frequent sun headaches. The patient did not adhere to dietary recommendations usually followed in diabetes. She followed a sedentary lifestyle and there was no evidence of acanthosis nigricans. No other chief complaints were noted.

Her appetite was increased (5–6 chapatis [an Indian bread]/meal, 3 meals/day) and had a desire for salt with extreme thirst for large quantities of water. Her tongue was mapped. Urine was mildly offensive, passed 9–12 times a day of moderate quantity with more urgency felt in the evening. She felt heaviness at the back of her head, weakness and lack of concentration in her daily work, disturbance with loud voices of anyone, especially of males, which caused shivering in the body.

The patient was also a diagnosed case of major depressive disorder and reported of weak memory, distressing dreams disturbing her sleep and erstwhile weeping without any reason. ‘I need to know that everyone else is okay before I enjoy myself. I want everything tidy and sorted out. I feel guilty when I try to relax and try to enjoy myself. Even on holiday I must organize everything so that they are all happy.’ She had been living separately from her husband for 2 years as she suffered domestic violence during her marriage, and even after separation, her husband kept torturing her on phone causing her persisted anxiety. She had filed for divorce 9 months ago. Her illness appeared to have been precipitated by the emotional strain of disappointment in her relationship, sadness due to marital disharmony and sustained anxiety. Her psychosocial circumstances were likely to have a negative impact on her quality of life and on her ability to self-manage this chronic disease as well as her ability to set and achieve lifestyle goals. Although she was aware of the importance of diet and exercise, due to her constant emotional strain affecting her day-to-day life, she did not make any effort towards it. The patient had been taking metformin 500 mg orally twice a day, since diabetes was diagnosed. Yet, her fasting blood glucose was above 200 mg/dl.

The patient’s previous medical history was insignificant.

Before initiation of the treatment, the patient’s FPG, postprandial plasma glucose, HbA1c levels, fasting plasma insulin (FPI) as well as her HDRS score were measured, and the values were used to establish a baseline status. Further, these parameters were monitored regularly for 6 months. The baseline and follow-up of the patient have been mentioned [Table 1].

**Clinical findings**

**Physical examination**

The patient weighed 56 kg; had a body mass index of 22.4 kg/m² and waist–hip ratio was 0.958.

The blood pressure in the right arm was 134/96 mmHg in a lying position and 140/90 mmHg in the sitting position.

Pulse rate was 88 beats per min; respiratory rate was 20 per min.

She used corrective lenses, pupils were equal and reactive to light and accommodation, fundi were clear and no retinopathy was observed during examination.

Bilateral dorsalis pedis arterial pulses were absent. The absent dorsalis pedis arterial pulse is known to be an independent predictor of major microvascular and macrovascular event in T2DM. \[12\]

**Diagnostic assessment**

Type 2 Diabetes Mellitus with Major Depressive Disorder.

Diagnostic methods- PE, laboratory testing of Diabetic profile, HOMA-IR calculation, HDRS scoring.

**Basis of prescription**

Repertorisation was done with the help of RADAR 10 software. \[13\] *Natrum muriaticum*, *Coccus indicus*, *Carbo vegetabilis*, *Pulsatilla*, *Sulphur*, *Zincum metallicum*, *Causticum* and *Nitric Acid* were the leading drugs in this case with the symptoms, namely ailments from grief, introspection, tendency to catch cold, desire for salt and constipation. After repertorisation, *Natrum muriaticum* secured the highest rank, as seen in Figure 1.
The mapped tongue, depression particularly in chronic disease, psychic cause of disease, sun headaches and craving for salt were so prominent in this patient that after consulting various homoeopathic materia medica books, \textit{Natrum muriaticum}, a deep acting anti-psoric medicine, was selected for this case. A few drugs are mentioned including \textit{Natrum muriaticum} under the rubric ‘Urine-sugar’ which is considered indicative of diabetes mellitus. Therefore, \textit{Natrum muriaticum} 30C was prescribed. The timeline including the follow-up details of the patient is given in Table 2.

In addition, there was a decrease in HDRS score from 25 (very severe depression) to 4 (normal) in the 6-month follow-up under homoeopathic treatment.

**Therapeutic intervention**

\textit{Natrum muriaticum} 30 three times a day for 3 days followed by placebo for 15 days was prescribed during the first visit on 19 August 2017. She was also advised for regular exercise for 35–40 min/per day, eating small meals at short regular intervals, including fibre-rich foods, avoiding junk/fast food/high-calorie diet, practise pranayama and meditation. This case was followed up till 24 February 2018. The timeline including the follow-up details of the patient are given in [Table 2].

**Discussion**

This case report shows an improvement in blood glucose levels while she was under homoeopathic treatment. There was a decrease in blood glucose, FPI, serum cholesterol and serum low-density lipoprotein which indicates an overall improvement in the patient. The patient gradually tapered and then discontinued metformin 500 mg under the physician’s guidance when she started the homoeopathic treatment since there was an overall general improvement. The HOMA-IR value of the patient has been reduced from 3.72 to 0.1 which has thrown light on the positive effect of homoeopathic treatment on \(\beta\)-cell function and IR. The patient has receded from ‘significant IR’ state to ‘optimal insulin-sensitive’ level, showing that Homoeopathic treatment can substantially improve IR. Weight of the patient was maintained at 56 kg and did not further decline (as weight reduction is expected in diabetics). Blurring of vision, generalised weakness, itching in the whole body or pain in bilateral calf muscles also improved with homoeopathic treatment. The patient did not have as frequent URTIs as before. The patient had thyroid-stimulating hormone of 5.8 \(\mu\)IU/ml at baseline which reduced to 0.7 \(\mu\)IU/ml at the end of 6 months of homoeopathic treatment. This depicts an improvement in the thyroid status also by \textit{Natrum
Table 2: Timeline including follow-up of the case

<table>
<thead>
<tr>
<th>Date</th>
<th>Diet adherence</th>
<th>Exercise adherence</th>
<th>Follow-up of the patient</th>
<th>Medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>04 November 2017</td>
<td>Yes</td>
<td>Yes</td>
<td>General improvement reported by the patient, metformin 500 mg was tapered down to once daily, appetite-2 chapatti/meal, 3 meals/day, thirst regular, Urine-D&lt;sub&gt;1&lt;/sub&gt;N&lt;sub&gt;0.5&lt;/sub&gt;</td>
<td>Placebo for 15 days</td>
</tr>
<tr>
<td>04 October 2017</td>
<td>Yes</td>
<td>Yes</td>
<td>General improvement reported by the patient, no new complaint reported, metformin 500 mg was tapered down to every alternate days foot examination done-bilateral dorsalis pedis arterial pulses felt, Urine-D&lt;sub&gt;1&lt;/sub&gt;N&lt;sub&gt;0.5&lt;/sub&gt;</td>
<td>Placebo for 15 days</td>
</tr>
<tr>
<td>13 November 2017</td>
<td>Yes</td>
<td>Yes</td>
<td>No further improvement in blood glucose levels noticed; Urine-D&lt;sub&gt;3&lt;/sub&gt;N&lt;sub&gt;0.1&lt;/sub&gt;</td>
<td>Natrum muriaticum 200 once daily for 3 days, followed by placebo for 15 days</td>
</tr>
<tr>
<td>13 December 2017</td>
<td>Yes</td>
<td>Yes</td>
<td>General improvement reported by the patient, metformin 500 mg was tapered down to once in every 3 days, no new complaint, Urine-D&lt;sub&gt;2&lt;/sub&gt;N&lt;sub&gt;0.1&lt;/sub&gt;</td>
<td>Placebo for 15 days</td>
</tr>
<tr>
<td>23 January 2018</td>
<td>Yes</td>
<td>Yes</td>
<td>Improvement of complaints, but frequent sun headache for 2 days. All other parameters within normal limits. Metformin was now discontinued by the patient</td>
<td>Natrum muriaticum 1 month once daily for 1 day, followed by placebo for 15 days</td>
</tr>
<tr>
<td>24 February 2018</td>
<td>Yes</td>
<td>Yes</td>
<td>General improvement, no new complaint, Urine-D&lt;sub&gt;2&lt;/sub&gt;N&lt;sub&gt;0.1&lt;/sub&gt;</td>
<td>Placebo for 15 days</td>
</tr>
</tbody>
</table>

Table 3: Assessment by Modified Naranjo Criteria during follow-up of the case

<table>
<thead>
<tr>
<th>Question number</th>
<th>Question</th>
<th>Yes/No/Not sure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Was there an improvement in main symptom?</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Did clinical improvement occur within plausible time frame?</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Was there an initial aggravation of the symptom?</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Did effect encompass more than the main symptom?</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Did overall well-being improved?</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Direction of cure</td>
<td>Not sure</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Did old symptom reappear temporarily?</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Are there alternate causes that might have caused improvement?</td>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Health improvement confirmed by objective evidence</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Did repeated dosing create similar improvement?</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total marks obtained</td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

The absence of bilateral dorsalis pedis pulse encountered during clinical examination at baseline indicated the risk of peripheral arterial disease; however, the pulse was palpable again when checked again later on during the follow-ups under homoeopathic treatment. The case suggests the effectiveness of homoeopathic treatment in the management of hyperglycaemia with comorbidity of major depressive disorder. Although the study of a single case does not constitute a strong opinion, the outcome is encouraging. The causal attribution was established using the Modified Naranjo Criteria, the score was 7, i.e., ‘possible’ as given in Table 3. No side effects were observed. Under homoeopathic treatment, the patient’s HDRS score also decreased greatly, mood became good, energy levels became higher and her coping also ability improved. In this case report, the effect of homoeopathic treatment in controlling the IR and combating depression has been noted. We propose that a study be taken up on a larger population to validate the results of homoeopathy in such comorbid clinical conditions to generalise the outcome of this case study on a wider population.

**Conclusion**

Although no studies relating to the short-term or long-term effects of Homoeopathy on blood glucose levels of a patient of major depressive disorder have been published, based on this clinical case report, it is suggested that future studies are needed to investigate in a larger population of patients with depression-induced T2DM. This case also shows the significance of individualisation in Homoeopathy. Homoeopathy considers ‘man as a whole’ and thus this patient too improved subjectively, as well as there was an improvement in blood glucose levels along with other investigations. The aim of homoeopathic treatment is not only to treat T2DM but also to address its underlying cause, miasmatic background, individual susceptibility, etc. The effect of *Natrum muriaticum* in controlling the blood glucose values as well as HDRS score demonstrates its antidiabetic capabilities under the ambit of depression which is documented in this case report, which is found in homoeopathic literature too.
Declaration of patient consent
The authors certify that they have obtained the patient’s written consent form. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that due efforts will be made to conceal her identity.

Financial support and sponsorship
Nil.

Conflicts of interest
None declared.

References
Prise en charge homéopathique dans un cas de trouble dépressif majeur associé au diabète sucré de type 2 : un rapport de cas

La Introduction: Le trouble dépressif majeur chez les personnes diabétiques représente un phénomène multifactoriel résultant des interactions entre les facteurs biologiques et psychosociaux, ce qui peut intensifier la probabilité de développer un diabète sucré de type 2 (T2DM) chez des individus autrement en bonne santé. Résumé des cas: Un cas de T2DM est rapporté chez une femme de 38 ans souffrant d'un trouble dépressif majeur qui a été traitée avec succès avec des médicaments homéopathiques individualisés. Le patient a signalé à la clinique des troubles du mode de vie de L'Hôpital homéopathique, Noida, avec un diabète récemment diagnostiqué de 8 mois. Après traitement homéopathique individualisé, le glucose de plasma de jeûne du patient, la glucosa postprandial, les niveaux d'HbA1c, l'insuline de plasma de jeûne et le score d'échelle d'évaluation de dépression de Hamilton ont été réduits dans un délai de 6 mois. Les résultats dans ce rapport de cas sont encourageants et fournissent l'évidence en soutenant l'efficacité de l'homéopathie individualisée en réduisant l'hyperglycémie dans un patient présentant le désordre dépressif principal.
Homöopathisches Management bei schwerer depressiver Störung im Zusammenhang mit Typ-2-Diabetes mellitus: Ein Fallbericht


与2型糖尿病相关的严重抑郁症患者的同源性病理管理：病例报告

介绍：糖尿病患者的主要抑郁症是一种多因素现象，由生物因素和心理社会因素之间的相互作用引起，这可能增加在本来健康的个体中发展2型糖尿病（T2DM）的可能性。案例摘要：据报道，一名38岁患有严重抑郁症的妇女患有T2DM病例，她用个性化的同源药物成功治疗。病人向诺伊达同源医院的生活方式障碍诊所报告，最近诊断患有8个月的糖尿病。经过个性化的同源治疗后，患者的禁食血浆葡萄糖、术后葡萄糖、HbA1c水平、禁食血浆胰岛素和汉密尔顿抑郁症评分等级评分在6个月内降低。本案例报告中的发现令人鼓舞，并提供了证据，支持个性化同源病在减少重症抑郁症患者高血糖方面的有效性。