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Brittle diabetes: Psychopathology and personality

Lorenzo Pelizza [a,*], Simona Pupo [b]

[a] Guastalla Psychiatric Outpatients Service, Reggio Emilia Mental Health Department,Via Salvo D'Acquisto n.7, 42016 Guastalla, (RE), Italy
[b] Intensive Care Unit, Guastalla Civil Hospital, Reggio Emilia Health Care Service, Via Donatori di sangue n.1, 42016 Guastalla, (RE), Italy

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ABSTRACT

The term "brittle" is used to describe an uncommon subgroup of patients with type I diabetes whose lives are disrupted by severe glycaemic instability with repeated and prolonged hospitalization. Psychosocial problems are the major perceived underlying causes of brittle diabetes. Aim of this study is a systematic psychopathological and personological assessment of patients with brittle diabetes in comparison with subjects without brittle diabetes, using specific parameters of general psychopathology and personality disorders following the multi-axial format of the current DSM-IV-TR (Diagnostic and Statistical manual of Mental Disorders – IV Edition – Text Revised) diagnostic criteria for mental disorders. Patients comprised 42 subjects with brittle diabetes and a case–control group of 42 subjects with stable diabetes, matched for age, gender, years of education, and diabetes duration. General psychopathology and the DSM-IV-TR personality disorders were assessed using the Symptom Checklist-90-Revised (SCL-90-R) and the Structured Clinical Interview for axis II personality Disorders (SCID-II). The comparison for SCL-90-R parameters revealed no differences in all primary symptom dimensions and in the three global distress indices between the two groups. However, patients with brittle diabetes showed higher percentages in borderline, histrionic, and narcissistic personality disorder. In this study, patients with brittle diabetes show no differences in terms of global severity of psychopathological distress and specific symptoms of axis I DSM-IV-TR psychiatric diagnoses in comparison with subjects without brittle diabetes. Differently, individuals with brittle diabetes are more frequently affected by specific DSM-IV-TR cluster B personality disorders.

1. Introduction

The term "brittle" diabetes is usually credited to Woodyatt (Tattersall, 1997), who called patients "brittle" if their glycaemic control was so fragile that they were subject to frequent and unpredictable fluctuations between hyperglycaemia and insulin reactions, provided that known causes of instability had been excluded. Patients with brittle type I diabetes suffer chronically from poor metabolic control, characterized by severe instability of glycaemic values with frequent and unpredictable hypoglycaemic and/or diabetic ketoacidosis episodes (Voulgari, Pagoni, Paximadas, & Vinik, 2012). Quality of life is dramatically compromised because of very frequent acute complications leading to hospital admissions and because of premature chronic complications (Tattersall, 1977). Patients with brittle diabetes generally defy conventional attempts at recontrol with multiple injection therapy or continuous insulin infusion, are enormously costly in terms of health-care resources, and place a heavy burden on their family and health-care teams (Vantighem & Press, 2006).

In the last decades, the crux of the diagnostic matter was whether the epithet "brittle" had to be used where the cause of the instability was unknown. According to Tattersall (1981), insistence on excluding known causes of glycaemic instability assumed diagnostic omniscience and was unhelpful if it led to the advice that ordinarily no specific cause for true brittleness could be found. He argued that diagnostically it was more useful to reserve the term "brittle" for that small but conspicuous, exasperating, and expensive minority of patients whose lives were constantly disrupted by hypoglycaemia or hyperglycaemia whatever the cause. Researches for hormonal and metabolic causes for the brittle diabetes (such as adrenal or pituitary deficits, dysthyroidisms, gastroparesis, delayed gastric empting as a result of autonomic neuropathy, malabsorption, renal failure, and other organic disorders characterized by metabolic stress) have been generally unrewarding (Bertuzzi, 2007).

More frequent "psychosocial" problems (often manifested as the deliberate induction of poor glycaemic control) have been broadly demonstrated and are the major perceived causes of brittle diabetes, leading to a self-perpetuating condition (Gill, Lucas, & Kent, 1996; Schade & Burge, 1995). According to Gill et al. (1996), the vast majority (95%) of diabetologists retrospectively consider various psychosocial disturbances as the single most important likely underlying casual factors. Moreover, Tattersall (1997) has noted that treatment may often require sharing the patient's frustrations, his emotional changeability, anger, and anxieties, which seem to interfere significantly with the glycaemic control (probably through an increased secretion of insulin-counteracting hormones). In a 12-year follow-up study, Tattersall (1977) have suggested that the tendency

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* Corresponding author at: c/o CSM Guastalla, Via Salvo D'Acquisto n.7, 42016 Guastalla, (RE), Italy. Tel.: +39 0 522/837561; fax: +39 0 522/838980.
E-mail address: anolino@yahoo.it (L. Pelizza).

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of brittle diabetes to become more stable with time was unlikely to be due to home monitoring of blood glucose concentration, better education, multiple insulin injections or the use of insulin pumps nor pens, but the main stabilizing factor seemed to be removal of the stress (e.g. by leaving home or getting divorced).

However, no systematic psychopathological assessment was conducted on brittle diabetes. In all studies on brittle diabetes published in literature, data on psychosocial problems have been gathered through the administration of non-specific questionnaires to the diabetologist. Diabetologists were generically asked to speculate as far as possible on the reason for brittleness and highlight any psychosocial factors considered of possible relevance to severe glycaemic instability (Gill, 1992). Psychosocial problems have more often been described as non-specific anxious–depressive syndromes, family dysfunction, marital disharmony, unsatisfactory relations with parents or spouse, bad-tempered separation or divorce, "life chaos", adolescent crises, unhappiness at school, and poor outside resources with no family support (Gill & Lucas, 1999). Other patients with brittle diabetes seem to show clinical features belonging to unspecified personality disorders (such as a history of manipulative behavior, low frustration tolerance, more difficulty in verbalizing emotions, obsessional glycaemic self-control, poor impulse control, and extreme difficulties in adapting and accepting their diabetes or in taking appropriate decisions related to their diabetic management) (Brosig, Leweke, Milch, Eckhard, & Reimer, 2001). It has also been suggested that some subjects with brittle diabetes (particularly young women) may resolve psychosocial conflicts by disrupting glycaemic control to withdraw into a "disease role" (Gill & Walford, 1986). Certainly, a deliberate interference with therapy and a deliberate ("factitious") induction of both ketoacidosis and hypoglycaemia have been well described (Bhatnagar, 1988).

Aim of the study is a systematic psychopathological and personological assessment of patients with brittle diabetes. In particular, we want to compare subjects with brittle and non-brittle type 1 diabetes on specific parameters of general psychopathology and personality disorders following the multi-axial format of the current DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorder – IV edition – Text Revised) diagnostic criteria for mental disorders (axis I and II) (American Psychiatric Association, 2001). We want to conduct these assessments to build upon the previous mostly anecdotal data.

2. Subjects, materials and methods

The patients comprised 42 individuals affected by brittle type 1 diabetes recruited at the Diabetes Centre of the Guastalla Civil Hospital (Reggio Emilia Health-Care District). They were all patients of at least 5 years duration and their age comprised between 18 and 40 years. All patients had been intensively investigated. In order to avoid any attempt to selection, in this study subjects with brittle diabetes had to fulfill the Tattersall's diagnostic criterion of "severe life-disrupting glycaemic instability of any kind" (Tattersall, 1977), as well as later accepted characteristics including "recurrent and/or prolonged hospitalization" (interfering with work and leisure) (Kent, Gill, & Williams, 1994) and "glycaemic instability despite intensive subcutaneous insulin therapy (including subcutaneous pump treatment)" (Pickup, Williams, Johns, & Keen, 1983). Nowadays, this working definition is the most universally accepted definition of "brittleness" (Cartwright et al., 2011). However, in all cases infective, endocrine and therapeutic causes of glycaemic instability had been carefully excluded (Bertuzzi, 2007; Gill, 1992).

To compare with patients affected by "non-brittle" type 1 diabetes, a case–control group of subjects with "stable" type I diabetes was recruited. The 42 individuals with non-brittle diabetes were from the same Diabetic Centre and consisted of patients who did not meet accepted definitions of "brittle diabetes". They were also matched for age, gender, years of education, and diabetes duration. Moreover, both in groups with and without brittle diabetes, illiterate or markedly cognitively deteriorated subjects and patients suffering from mental retardation or organic mental disorders were excluded.

Full permission for the study was obtained from all patients, which specifically also gave their written informed consent to the psychopathological and personological assessment. Relevant ethical and local NHS research and development approvals were sought for the study. Socio-demographic and clinical information included age and gender, education, marital and employment status, diabetes duration, history of current or past mental disorder, and familiarity for diabetes and psychiatric illness. To obtain a thorough evaluation, data were collected on the same day for each patient.

General psychopathology and the DSM-IV-TR personality disorders were assessed using the Symptom Checklist-90-R (SCL-90-R) (Derogatis, 1977) and the Structured Clinical Interview for DSM-IV-TR Axis II personality Disorders (SCID-II) (First, Gibbon, Spitzer, Williams, & Benjamin, 1997). The person conducting the interview was blinded as to whether a patient was a case or a control.

The *SCL-90-R* is a relatively brief self-report psychometric questionnaire designed to evaluate a broad range of symptoms of psychopathology. It can be useful in a cross-sectional evaluation as an objective method for an overview of symptoms and their intensity at a specific point in time (it measures the psychiatric symptoms suffered by the patient in the last week) (Conti, 1999). It consists of 90 items (each evaluated on a 5-point rating scale [from "0 = not at all" to "4 = extremely"]) and yields ten scores along primary symptom dimensions (somatisation, obsessive–compulsive features, interpersonal sensitivity [corresponding to feelings of personal inadequateness and inferiority in the relationships with the others], depression, anxiety, hostility and anger, phobic anxiety and agoraphobia, paranoid ideation, psychoticism [relative only to psychotic behavioral aspects], and sleep disturbances) and three scores of global distress (Global Severity Index [GSI], which is the average score of the 90 items of the questionnaire and has been designed to measure overall psychological distress; Positive Symptom Distress Index [PSDI], which is the average score of the items scored above zero and has been designed to measure the intensity of symptoms]; and positive symptom total [PST], which corresponds to the number of items scored above zero). The GSI is suggested to be the best single indicator of the current level of the psychopathology (Derogatis, 1977). More than one thousand of researches have been conducted demonstrating the reliability, validity, and utility of the instrument (Conti, 1999). In particular, several recent studies using the SCL-90-R as a measure of mental status concerned mental health issues in a non-psychiatric setting.

The *SCID-II* is an efficient instrument that helps researchers and clinicians to make standardized, reliable, and accurate diagnoses of the 13 DSM-IV-TR Axis II personality disorders. It is composed of a preliminary questionnaire and an interview. The SCID-II personality questionnaire is a "yes/no" questionnaire available as a screening tool to shorten the time it takes the clinician to administer the SCID-II Interview. When the interview is administer, the clinician needs only to inquire about the items answered "yes" on the questionnaire. The SCID-II Interview is composed of 119 items corresponding to all the diagnostic criteria of each DSM-IV-TR personality disorder. Each item is scored as "1" (absent), "2" (sub-threshold), or "3" (threshold). According to the DSM-IV-TR, for each personality disorder, if a threshold is reached on a sufficient number of items (i.e. at least 4 for paranoid, schizoid, avoidant, and obsessive–compulsive personality disorder; at least 5 for schizotypal, borderline, histrionic, and narcissistic personality disorder) (American Psychiatric Association, 2001), the diagnostic category of that specific personality disorder is deemed to be present. Several researches have been conducted demonstrating the psychometric properties of the SCID-II, particularly its validity and reliability (Conti, 1999).

In the comparison between groups with and without brittle diabetes on socio-demographic, clinical, and psychopathological parameters,

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