

Psychological insulin resistance: scope of the problem

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Diabetes mellitus is a pandemic that is infiltrating our society in tandem with the rising prevalence of obesity. Based on population surveys, up to one in 10 people in China have diabetes and half have pre-diabetes with the majority of them undiagnosed.¹ Diabetes reduces life expectancy by an average of 12 years and contributes to death in close to 10% of affected adults.² Prevailing evidence indicates that diabetes-related vascular complications are highly preventable through intensive glycaemic and global risk factor management, and that optimisation of blood glucose early in the disease trajectory translates into latent benefits for decades beyond.^{3,4}

Maintenance of optimal glycaemic control requires successive up-titration of antidiabetic drug treatment, and insulin is necessary for the majority of patients due to a natural progressive decline in pancreatic beta-cell function. Whilst international guidelines strongly advocate insulin supplementation upon failing two or three non-insulin antidiabetic drugs,⁵ initiation of insulin therapy is often delayed as a result of clinical inertia and resistance by patients.⁶ In a survey of patients with type 2 diabetes who attended general practices in the United Kingdom, there was a time lag of 5 years to the commencement of insulin during which glycaemic control had remained unsatisfactory on two or more non-insulin agents.⁶ Refusal of insulin is commonly encountered and between 20% and 40% of insulin-naïve patients with type 2 diabetes express unwillingness to inject insulin when prescribed.^{7–9} Furthermore, among existing insulin users, adherence to the prescribed regimen is suboptimal in up to one third of patients.¹⁰ Failure to initiate insulin therapy in a timely manner and to comply with the recommended injection doses and schedule are key factors that lead to low rates of glycaemic target attainment. Among participants of a multinational study that evaluated the quality of care of patients with diabetes in Asia, more than half of the enrolled patients did not reach the glycated haemoglobin (HbA1c) target of <7.0%, and the situation was worse in those with young-onset diabetes.¹¹

Psychological insulin resistance is a phenomenon that describes barriers to starting insulin therapy and/or adhering to prescribed treatment.¹² It encompasses a range of psychological factors that include fear of injection and/or pain,

fear of hypoglycaemia and/or weight gain, poor self-efficacy about the skills required to administer insulin, anxiety over interference with daily living, anticipated social stigmatisation, and misconceptions about the rationale and efficacy of insulin therapy. Depending on the assessment method and clinical setting, psychological insulin resistance is detected in approximately 40% to 70% of patients.^{13,14}

Culture, age, and gender are variables that may influence the scope of psychological insulin resistance.¹⁵ Based on studies conducted in western countries, the most important factor contributing to patients' reluctance to commence insulin therapy is the belief that insulin is not able to improve disease control and prognosis.^{16,17} Additionally, patients often perceive insulin therapy as a form of punishment for their personal failure to self-manage their diabetes, a point that is reinforced by the physician when insulin therapy has previously been presented as a threat to motivate self-care.^{18,19} It is noteworthy that fear of injection or pain was infrequently reported in these populations.⁸ In a recent study of local Chinese patients with type 2 diabetes, patients' impression of insulin therapy was explored using the Chinese Attitudes to Starting Insulin Questionnaire.²⁰ In contrast to observations in their western counterparts, Chinese patients, particularly females, were much more likely to fear needles and be apprehensive about pain associated with injection, whilst most were confident that insulin would improve their health outcome.

Fear of hypoglycaemia and weight gain is another critical factor that diminishes treatment satisfaction leading to compliance problems particularly among insulin users. In a survey of insulin-treated patients, frequent hypoglycaemia was reported in 40% and high fear score for hypoglycaemia in 15%.²¹ Predictors of fear of hypoglycaemia included young age, prior experience of severe hypoglycaemia, and perceived disruption of work life attributable to hypoglycaemia.²¹ It is not uncommon for patients to intentionally omit doses of insulin and/or eat excessively to avoid hypoglycaemia.

Despite a high prevalence, psychological insulin resistance is often under-recognised and inadequately addressed. Studies have demonstrated an association of psychological insulin resistance

with high HbA1c.²² A link between depression and psychological insulin resistance has also been identified, suggesting that patients who carry negative emotions are less willing to start and to comply with insulin therapy.^{17,23} It may be that efforts to alleviate aversion to insulin therapy should be extended to tackling triggers of diabetes-related distress and other emotional concerns.

From a practical standpoint, when faced with patients' unwillingness to initiate insulin, the health care provider should encourage acceptance by exploring the underlying issues and managing concerns in a positive manner, in order to minimise unnecessary delay in treatment titration. In the current issue of the *Hong Kong Medical Journal*, Lee²⁴ examined the prevalence of psychological insulin resistance in a cross-sectional study of Chinese patients with type 2 diabetes who attended a general out-patient clinic in Hong Kong and assessed the validity and reliability of the Chinese version of the Insulin Treatment Appraisal Scale. Using this instrument, psychological insulin resistance was prevalent in about half of the study subjects. The author, however, also identified a translation problem in at least one of the 20 questions in the questionnaire that may limit its general use in clinical practice. Psychological insulin resistance is a common reaction in people with diabetes and obstructs the necessary transition from oral antidiabetic drug to insulin. Health care professionals who care for patients with diabetes should be alerted to the multi-dimensional nature of psychological insulin resistance and be equipped to attend to various concerns, ease ambivalence, and facilitate a pathway for timely and effective use of insulin therapy.

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