

Difficult diabetes: the 7d approach

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Abstract

This communication describes a 7D approach to the assessment and management of 'difficult' or refractory type 2 diabetes. It lists 7 aspects of care, which may contribute to refractoriness of hyperglycaemia, and classifies them according to a bio-psycho-pharmacological triad. The biomedical aspects to be addressed include diagnosis of the type of diabetes and exclusion of comorbid disease. Psychosocial factors of importance include establishing effective dialogue with the patient, ensuring discipline in daily lifestyle, and minimizing diabetes related distress. Pharmacological factors which may cause difficulty in management pertain to inappropriate choice of drug or delivery device. A simple 7D checklist of factors which may lead to uncontrolled hyperglycaemia and indicate need for insulin therapy is also presented. The bio-psycho-pharmacological 7D approach serves as a simple, yet comprehensive, learning tool to help improve diabetes care.

Keywords: Type 2 diabetes, LADA, pancreatic diabetes, diabetes distress, insulin delivery, patient centered care, bio-psycho-social.

Introduction

Refractory diabetes, or difficult diabetes, is a term used to describe persons with diabetes in whom glycaemic control is difficult to achieve¹. Refractory diabetes has been discussed earlier as a psychosocial construct which may respond to appropriate patient - physician communication, also known as 'diabetes therapy by the ear'². The 5D mnemonic has also been developed to list common biomedical causes of refractoriness in diabetes management³. However, earlier models of managing refractory diabetes have limited themselves to either soft skills or to biomedical issues.

Bio-Psycho-Pharmacological Framework

This communication provides a holistic rubric with which

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to approach poorly controlled diabetes. It includes both biomedical and psychosocial causes of uncontrolled hyperglycaemia, thus allowing the medical practitioner to practice a unified biopsychosocial therapeutic strategy. The bio-psycho-pharmacological framework, as we term it, specifies the need for dialogue or patient centered care, as being central to diabetes care⁴. Thus, it reinforces the importance of shared decision-making and team work in management. It underscores the need for comprehensive psychological, medical, endocrine and surgical assessment in diabetes care^{5,6}. The triangular framework, depicted in figure 1, also highlights the pharmacological aspect of diabetes management and the need to choose drugs and delivery devices with due diligence.

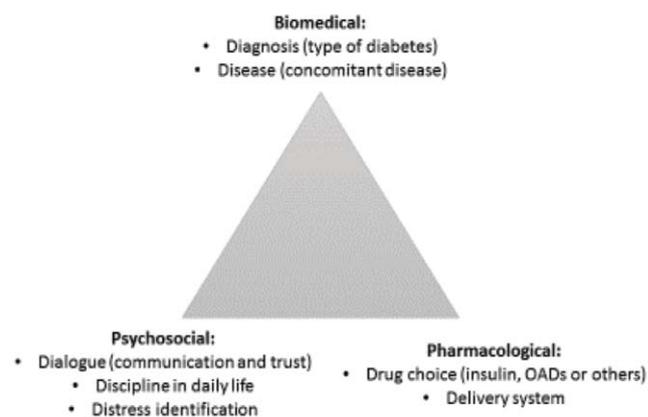


Figure-1: Bio-psycho-pharmacological model for difficult diabetes

The 7D Framework

The triad of psychosocial, biomedical and pharmacological causes of refractoriness of diabetes can be further expanded into a 7D framework, which lists 7 possible etiologies or contributory factors of uncontrolled hyperglycaemia as outlined in Table 1. These include psychosocial factors⁷ such as suboptimal dialogue between patient and physician, lack of discipline in daily life, and psychological/ psychiatric distress. Biomedical issues⁸, such as reviewing the diagnosis of (type of)

Table-1: The Bio-psycho-pharmacological 7D approach to difficult diabetes**PSYCHOSOCIAL****Dialogue**

- Ease and comfort
- Trust: practitioner-patient partnership
- Communication and motivation

Discipline in daily lifestyle

- Diet – nutrition counseling
- Physical activity
- Stress management
- Adherence to therapy

Distress

- Diabetes distress
- Depression and eating disorders
- Drug/ substance abuse

BIOMEDICAL**Diagnosis of diabetes**

- Type 2 diabetes with or without significant insulinopenia
- LADA (latent autoimmune diabetes)
- Pancreatic diabetes
- Secondary drug-induced diabetes (e.g. glucocorticoids, immunosuppressants, antipsychotics, protease inhibitors)

Disease

- Medical diseases e.g. rheumatoid arthritis, organ transplantation
- Surgical – perioperative stress, trauma
- Endocrine – obesity, insulin resistance syndromes, Cushing's syndrome, acromegaly, pheochromocytoma

PHARMACOLOGICAL**Drug**

- Drug class, e.g., sensitizer vs secretagogue, incretin drugs, insulin therapy
- Molecule choice, e.g., modern sulfonylurea vs first generation sulfonylurea, basal insulin vs premixed insulin vs basal-bolus regimen, short-acting or long-acting GLP-1 analog
- Preparation choice, e.g., sustained release vs immediate release dosage of drug

Delivery system

- Timing of administration
- Frequency of administration
- Insulin technique and injection site lipohypertrophy.

diabetes and screening for comorbid medical, surgical or endocrine disease also figure in the 7D list. The third angle

Table-2: The 7 I Insulin Indications

- **Infection**, e.g.; tuberculosis, respiratory or urinary infection, diabetic foot, mucormycosis, sepsis
- **Inflammation**, e.g., shoulder peri-arthritis, chronic inflammatory polyneuropathy
- **Injury**, e.g.; road traffic accident, polytrauma, soft tissue injury
- **Ischaemia**, e.g.; stroke, myocardial infarction or acute coronary syndrome, critical limb ischemia
- **Invasive procedure**, e.g., abdominal or cardiothoracic surgery, neurosurgery, limb amputation
- **Introgenic intervention**, e.g., corticosteroids, immunosuppressants
- **Intensive**
 - a. Short-term, e.g. acute hyperglycaemic emergencies, reversal of glucotoxicity
 - b. Long-term, e.g. failure to maintain glycaemic control on other therapies, micro-vascular or macro-vascular complications and comorbid diseases.

of the bio-psycho-pharmacological tripod relates to drugs and delivery systems. Just as one must review the diagnosis of diabetes and other diseases in difficult to control diabetes, the choice of therapy and its delivery must be audited as well. Another suggested 7D alliterative list (Table 2) includes a pathophysiologic classification of seven clinical situations which require immediate resolution of hyperglycaemia, preferably with insulin.

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