Combination oral hypoglycaemic drugs to initiate glycaemic control in patients with Type 2 Diabetes Mellitus with very high baseline fasting glucose

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ABSTRACT

Introduction: Type 2 Diabetes mellitus (DM) is a complex metabolic condition characterized by persistent hyperglycaemia, initially without insulin deficiency. The underlying pathophysiology is multifactorial involving peripheral tissue insulin resistance, increased hepatic glucose output and impaired intestinal incretin response. Untreated, this condition leads to significant mortality and morbidity from cardiovascular diseases and microvascular organ dysfunction (retinopathy, neuropathy and nephropathy). Furthermore, untreated type 2 DM causes progressive beta cell failure, rendering oral hypoglycaemic drugs ineffective. The Malaysian clinical guidelines and American Diabetic Association guidelines recommends induction insulin therapy to initiate glycaemic control in type 2 DM patients with very high fasting blood glucose (exceeding 13mmol/L and 16.7 mmol/L respectively). The acceptance rate of insulin therapy amongst newly diagnosed diabetic patient is low for various reasons. We report a case of a type 2 DM patient in which glycaemic control was induced using combination oral hypoglycaemic agents. **Case Report:** A 71- year old woman of mixed race (Uzbek-Ukrainian) with no known co-morbid presented with exertional chest pain. Clinical, radiographic and electrocardiographic assessment yielded a diagnosis of stable angina. Her laboratory tests however revealed a random glucose of 17.3 mmol/L. She declined pharmacological therapy and was instituted on strict diet control for 2 weeks. Unfortunately, her fasting glucose after this period was 13.3 mmol/L. Along with aspirin and anti-anginals, she was instituted on a combination of metformin (1 g) with sitagliptin (50mg) twice daily and empaglifozin 25 mg daily which she tolerated well. Four weeks post-therapy, her fasting glucose was 7.5 mmol/L and 2- hour post-prandial glucose was 8.3 mmol/L. We utilized a combination of metformin, a dipeptidyl peptidase-4 inhibitor and a sodium-glucose co-transporter-2 inhibitor to minimize the risk of hypoglycaemic attacks and to target different pathophysiological aspects namely insulin resistance, incretin insufficiency and renal tubular glucose reabsorption. **Conclusion:** Combination oral hypoglycaemic drugs are effective in initiating glycaemic control in type 2 DM patients with high baseline fasting glucose. It may be an acceptable alternative to subcutaneous insulin.