Glycemic indices of enteral feeding formulas in Diabetics at the Dr. Cipto Mangunkusumo General Central National Hospital Jakarta

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Abstrak

Diabetics occasionally need enteral nutrition-either as supplement or in situations necessitating total dependency on enteral nutrition to fulfill their energy requirements. Enteral nutrition specifically designed fordiabet-ics is not yet available in our hospital, as sugar is often added to enteral nutrition preparations, subsequently affecting the blood glucose profiles of the patients.

This study was done to determine the glycemic index of 4 kinds of enteraf feeding formulas, conducted among ambulatory diabetics attending the Diabetic Clinic of the Dr Cipto Mangunkusumo General Central National Hospital.

Twenty samples were purposively chosen among the Diabetic Clinic attendees. They were well-controlled non-pregnant diabetics; none of them were having either kidney or liver problems, and were otherwise healthy. Each of the diabetic studied was given 50-g glucose syrup (200 Kcal) as a standard load. With a 3 to 4 days interval, the patients were consecutively given several enteral feeding formulas, i.e., the standard hospital enteral feeding formula (MC-FRS I), a newly developed diabetic formula (MC-FRS II), a frequently-used commercially avai 1-ablepredigested/elemental enteral feeding formula {MC-FK I = Isocal), and a new predigested/elemental enteral feeding formula specifically designed for diabetics (MC-FK II=Diabetasol). All of the formulas tested contained energy equal to 50-g glucose (200 Kcal). Blood glucose was measured with an Accutrend-Ames® glucometer in fasting condition and subsequently 30,60,90 and 120 minutes after the load. Any glucose/enteral feeding loading was given 30 minutes after. Data were presented as a blood glucose curve and glycemic index were calculated as area under the blood glucose curve of each food load compared to the standard glucose load, presented as percentage.

In all the enteral feedings studied, the blood glucose response curves went up and the peaks achieved in 60 minutes, thereafter declined to points above the initial fasting blood glucose values. The glycemic index of the MC-FRS I, MC-FRS II, MC-FK I and MC-FK II were 39.6%, 25%, 45% and 52.1% respectively.

The sugar that was added to the MC-FRS I and MC-FK I did not give rise to higher blood glucose levels as compared to the other non-glucose-added food. All of the enteral feeding formula tested showed low glycemic index (Miller, less than 55%). The difference glycemic index among the formulas studied might be due to different food composition (predigested/elemental component in the commercial enteral feeding formula; no sugar added and higher fiber in MC-FRS II as compared to MC-FRS I; higher fat content in MC-FK 1 as compared to MC-FK II). Glycemic index of enteral feeding formula was particularly determined by the total carbohydrate, total fat and total protein content of the food, as well as the presence of fiber and antinutrient in the food studied.