

Abstract

The prevalence of type 2 diabetes mellitus (DM) is increasing worldwide. It is estimated that by 2030 the number of type 2 DM cases in Vietnam will double in comparison with 2010. As reported by preceding researches, DM patients in Vietnam have a relatively low body mass index (BMI) of approximately 23. The use of white rice (WR) as a staple food may be involved as the major factor, since it has been demonstrated and distinguished as a high glycemic index food and a risk factor for DM. In contrast with WR, brown rice (BR) has been widely known to be beneficial in control of plasma blood glucose levels; however, due to the harsh outer bran, it poses the problem of coarse texture and unpleasant taste. Pre-germinated brown rice (PGBR) is made by soaking BR in lukewarm water for about a day. In consequence, while PGBR retains nutrient contents of BR, it becomes softer in texture and tastier. A number of studies implemented to evaluate the effect of PGBR have reported positive results in blood glucose and lipid levels.

Purpose: This follow-up study was designed as a controlled clinical trial to elucidate the long-term impacts of a 4-month PGBR administration on blood glucose and HbA1c levels in Vietnamese type 2 DM patients.

Methods: Sixty subjects were selected from over two hundred patients of Nam Dinh

Endocrinology Hospital in Northern Vietnam. The participants were divided into either WR group or PGBR group. Before the beginning, at the midpoint and at the study final, 1) anthropometric measurements, 2) nutrition survey, and 3) blood biochemical examinations were conducted. For anthropometric measurements, weight, height, waist and hip circumferences and body fat percentage were measured. Nutrition survey was designed to collect information for 3 non-consecutive days by 24h recall method. For blood collection, intravenous fasting blood samples were taken in early morning and serum separated by centrifuge was used for the analyses of glucose, HbA1c, triacylglycerol, total cholesterol, LDL-cholesterol and HDL-cholesterol. During the time of intervention, subjects continued their anti-diabetic medication.

Results: The results show that blood glucose concentration and HbA1c index were favorably improved in the PGBR group, yet such reduction was not observed in the WR group.

Discussion: The favorable effects of PGBR found in this study can be explained by the synergy multiple nutrients and bioactive compounds.

Conclusion: The present results suggest that replacing WR with PGBR may be useful in modulating blood glucose levels in Vietnamese type 2 DM patients.

要旨

ベトナムの2型糖尿病患者数は、2030年には2010年の倍になると予想されている。すでに報告されているように、ベトナムの糖尿病患者のBMIは比較的低く、約23である。その原因は、グリセミックインデックス値の高い白米の過剰摂取にあると推測される。白米に対して玄米は、血糖値のコントロールによいことは広く知られているが、表皮が固く食べにくい。発芽玄米は、玄米を温かい水に1日浸して作られる。発芽玄米は、玄米の大部分の成分を保持しているが、柔らかく食べやすい。

目的：発芽玄米を2型糖尿病患者に4か月間与えた時の血糖値への効果を明らかにすること。

方法：ハノイ郊外のNam Dinh 内分泌病院において200名以上の患者から研究に協力できる60名を選んだ。対象者を2群に分け、主食として一方には白米、他方には発芽玄米を与えた。研究開始前、中間辞典、そして最後のところで、1) 体位、2) 栄養調査、そして3) 血液生化学検査を行った。体位測定は、身長、体重、ウエスト・ヒップ比、体脂肪率を測定した。栄養調査は、栄養調査は、3日間不連続の24時間思い出し法で行った。血液採取は、早朝空腹時に行い、ブドウ糖、HbA1c、中性脂肪、総コレステロール、LDL-コレステロール、およびHDL-コレステロールを測定した。

結果：4ヶ月間の介入後、グルコースとHbA1cは発芽玄米群では改善が観察された。一方、白米群では変化はなかった。

考察：発芽玄米の顕著な効果は、発芽玄米に含まれる食物繊維と機能成分の相乗効果にもよると考えられる

結論：糖尿病患者の主食である白米を発芽玄米に置き換えると血糖値が顕著に改善されることが明らかになった。