



Service Priorities and Programmes
Electronic Presentations

Convention ID: 1005

Submitting author: Dr Chi Fai Tsang

Post title: Medical Officer, Princess Margaret Hospital, KWC

The Prevalence of Vitamin B12 Deficiency in Patients with Type 2 Diabetes Mellitus Taking Metformin in General Outpatient Clinic Setting: A Cross-sectional Pilot Study in Shek Kip Mei General Outpatie

Tsang CF(1), Pon WP (1), Cheung KL(1)

(1) Dept of Family Medicine & Primary Health Care, KWC

Keywords:

Prevalence

Vitamin B12 Deficiency

Metformin

Diabetes Mellitus

Introduction

Type 2 diabetes mellitus is frequently treated by primary care doctors. Metformin is the most frequently prescribed first-line therapy for individuals with type-2 diabetes. Early observation indicated a 30% prevalence for vitamin B12 malabsorption among patients undergoing long-term metformin treatment. Subsequent studies reported metformin reduced serum B12 level by 14% to 30%. Knowledge of the local burden of vitamin B12 deficiency in our metformin-treated diabetic population, taken care in the primary care setting is of importance in determining the value of screening for B12 deficiency

Objectives

To study the prevalence of vitamin B12 deficiency in patients with type 2 diabetes mellitus taking metformin in the general outpatient clinic setting.

Methodology

Design: Observational cross-sectional study. Subjects: Patients with type 2 diabetes taking metformin for at least 1 year attending follow-up in the Shek Kip Mei GOPC during the period of 26/4/2012 to 26/8/2012. A random sample was drawn from 944 potentially eligible individuals. Patients were screened during their follow-up and those who had history of pernicious anemia, Crohn's disease, terminal ileum disorders, partial/total gastrectomy or small bowel resection, or on parenteral B12 supplementation within 3 months prior to study initiation were excluded. A sample of blood for measurement of serum B12 level was obtained for each recruited subject. Patient demographics, medication parameters and the serum vitamin B12 level were recorded. The prevalence of B12 deficiency was calculated. Possible association was examined by Chi squared test, independent sample t-test and correlation coefficient. The linear regression model was used for multivariate analysis.

Result

121 eligible subjects were included. Serum vitamin B12 levels were low (< 133pmol/L)

in 21 patients (17.4%) and possibly low (133-220pmol/L) in 46 patients (38%). B12 levels were independently and negatively associated with age ($B = -2.776$; $\beta = -0.304$; $p = 0.01$) and dose of metformin use ($B = -0.043$; $\beta = -0.269$; $p = 0.02$), and also associated with sex (Male = 1, female = 0; $B = -41.014$; $\beta = -0.211$; $p = 0.016$). Conclusion: The findings suggested a high prevalence of vitamin B12 deficiency in metformin-treated diabetic patients in GOPC setting. Being male, older patients, patients in higher current metformin dose tend to result in lower serum B12 level and thus, are probably more prone to this deficiency. Primary care doctors should stay alert about the condition when managing diabetic patients treated with metformin.