

Serum Vitamin B₁₂, Folic Acid, Ferritin and Hematologic Status in Patients with Bladder Substitution

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ABSTRACT

Vitamin B₁₂ below reference level was found in 12.5% of the patients who underwent bladder substitution by ileal conduit (IC) surgical technique and in 10% of the patients using Mainz pouch (MP) technique. Anemia was found in 31.3% of the IC group and in 20% of the MP group but none of the patients developed iron-deficiency anemia. Serum folic acid was within the reference range in all patients. The mean levels of all biochemical and hematologic parameters in both groups were not significantly different. With regard to the follow up period, the number of patients with vitamin B₁₂ deficiency was higher in the group with the follow-up period of more than 5 years compared to that with the follow-up period of less than 5 years (18.2% vs 6.7%).

Key words: Vitamin B₁₂, Folic acid, Anemia, Bladder substitution, Ileal conduit, Mainz Pouch

INTRODUCTION

The use of an intestinal portion, particularly the small intestine for bladder substitution may alter the absorption process and can result in nutritional deficiencies. It is known that the ileum is the absorption site for vitamin B₁₂. Thus the removal of these segments has the potential to increase the risk of vitamin B₁₂ deficiency. Vitamin B₁₂ can not be synthesized in human and must be obtained from animal products which is the main dietary source. Free vitamin B₁₂ must be released from dietary protein and bound to an intrinsic factor in the stomach. The vitamin B₁₂ intrinsic factor complex moves to the ileum and is attached to a specific membrane receptor of the ileum and is then absorbed by endocytosis (Seetharam et al., 1981). The objective of this study was to assess the level of vitamin B₁₂, folic acid and hematologic status in patients from whom part of the terminal ileum had been removed for urological reconstruction.

MATERIALS AND METHODS

Patients

A total of 26 patients with invasive bladder cancer who underwent bladder replacement at Maharaj Nakorn Chiangmai Hospital, Chiang Mai, Thailand between 1983-1999 were recruited. They consisted of 22 men and 4 women with a mean age of 61 years (range 37 to