Impact of an Academic Detailing Tool to Modify Administration of Vitamin B12 in Alberta Health Services

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CSHP 2015 Goal: This project applies to Goal 3: Increase the extent to which hospital and related healthcare setting pharmacists actively apply evidence-based methods to the improvement of medication therapy.

CSHP 2015 Objective: This project applies to Objective 3.1: In 100% of hospitals and related healthcare settings, pharmacists will be actively involved in providing care to individual patients that is based on evidence, such as the use of quality drug information resources, published clinical studies or guidelines, and expert consensus advice.

Background

High-dose oral vitamin B12 is as effective as injectable vitamin B12 for treating vitamin B12 deficiency, but is more comfortable for patients to administer, less workload intensive, and more cost-effective than injectable vitamin B12. The Alberta Health Services (AHS) Drug Stewardship team developed a one-page Drugs and Therapeutics Backgrounder (DTB) reviewing the evidence for oral vitamin B12. The intention of the DTB was to provide a summary of the evidence for pharmacists within AHS when evaluating patients and making recommendations regarding switching patients from injectable to oral vitamin B12.

Rationale & Objectives

Evidence has demonstrated that despite the comparable effectiveness of oral vitamin B12 to injectable vitamin B12, many patients remain on injectable vitamin B12. The objective of our study was to evaluate utilization of oral and injectable vitamin B12 before and after the implementation of the vitamin B12 DTB.

Methods/Implementation

We used an uncontrolled before (July 1, 2013 to December 31, 2013) and after (January 1, 2014 to June 30, 2014) study to evaluate our study objective. The DTB was released to all pharmacy staff within AHS in December 2013 and January 2014, and two short presentations were provided to AHS pharmacists via Microsoft Lync to explain the tool in more detail and answer questions about the tool. Drug dispensation data for all formulations of vitamin B12 was obtained for sites within AHS. Oral and injectable doses were standardized using the World Health Organization's defined daily dose (DDD) for oral (1000 mcg) and injectable (20 mcg) vitamin B12. Median oral and injectable use in DDD per patient discharge was compared before and after implementation of the academic detailing tool using a Mann Whitney U test.

Results & Evaluation

A total of 202,915.4 DDDs of vitamin B12 were administered orally and 776985.0 DDDs were administered via injection in AHS over the study time frame. The median use of oral vitamin B12 per patient discharge during the six months prior to the introduction of the summary document was 0.452 DDDs (interquartile range [IQR]: 0.11). During the six months after the introduction of the summary document, the median use of oral vitamin B12 increased to 0.534 DDDs (IQR: 0.09) per patient discharge ($p = 0.02$). The median use of injectable vitamin B12 during the 6 months prior to the introduction of the summary document was 1.910 DDDs (IQR: 0.81) per patient discharge, and this decreased to a median of 1.536 DDDs (IQR: 0.60) per patient discharge in the 6 months after initiation of the vitamin B12 DTB ($p = 0.046$). Our results demonstrate that the development and implementation of the vitamin B12 DTB significantly increased oral vitamin B12 use and significantly decreased injectable vitamin B12 use with AHS acute care sites.