

AN EVALUATION OF PHARMACIST AND HEALTH FOOD STORE RETAILER'S KNOWLEDGE REGARDING POTENTIAL DRUG INTERACTIONS ASSOCIATED WITH ST. JOHN'S WORT

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ABSTRACT

Background

Natural health products (NHP) are increasingly being used by patients concomitantly receiving prescription drugs, which can result in potentially serious drug-herb interactions. This is particularly true for St. John's wort.

Objective

This study was conducted to evaluate pharmacists and natural health product retailers' knowledge on this topic.

Methods

An interviewer approached 24 pharmacists and 6 natural health product retailers to obtain information regarding St. John's wort. If asked, the interviewer indicated that they were currently using cyclosporine to treat a problem of proteinuria. The response of the pharmacist or NHP retailer to a series of questions was recorded after the encounter.

Results

90% of respondents indicated that St. John's wort was useful for treating depression. Two-thirds of the respondents required prompting by the interviewer before providing any comments pertaining to safety. 60% of the respondents inquired about concurrent medications and 40% made statements regarding potential drug-herb interactions.

Conclusion

Despite the potential for a serious drug-herb interaction involving St. John's wort and cyclosporine, less than half of the pharmacists and natural health product retailers that were encountered in the study addressed this topic with the prospective patient/client. Individuals selling natural health products need to communicate more information to their patients/clients regarding potential drug-herb interactions.

Key words: *natural health products; St. John's wort; drug interactions; cyclosporine*

Health Canada's Natural Health Products Directorate (NHPD) indicates that 71% of Canadians use natural health products.¹ The list of products includes herbal remedies, vitamins and minerals, homeopathic medicines, traditional medicines (e.g. traditional Chinese medicines),

probiotics, amino acids and essential fatty acids.² In 2005, Canadians spent an estimated \$3.6 billion dollars out-of-pocket on natural health products.³ The most popular natural health products are herbal remedies;^{4,5} and with increasing use, more pharmacists are encountering customer inquiries

regarding these products.⁵⁻⁷ In addition, pharmacists have a professional responsibility to provide patients with information regarding the products that are stocked in their pharmacies, and this includes herbal medications.⁴⁻¹⁰

Even as pharmacists are increasingly being asked about herbal remedies, the studies that have examined pharmacists' knowledge of these products have shown that pharmacists lack sufficient knowledge on herbal medications.^{4,5,9,11,12} A study by Chang,⁹ which surveyed 217 pharmacists from Virginia and North Carolina, found that pharmacists are more knowledgeable about the uses for herbal medication than about the drug interactions, adverse effects and precautions. Pharmacists who had previously taken continuing education on herbal medications or had access to information resources at their workplace were much more knowledgeable about the products. In a survey of 2000 Californian pharmacists, 79% had received training, attended educational programs or had examined literature that primarily addressed alternative medications. Despite these high numbers, many pharmacists did not feel knowledgeable about herbal medications and were not comfortable providing information on these products.^{6-7,9}

The lack of information being provided to patients explains the result of a 2005 survey which found that 52% of Canadians believed natural health products were safe because they were made from natural ingredients.¹ However, adverse effects have been documented with herbal medications due to the biological composition of the herb, effects caused by contaminants or from drug-herb interactions.^{13,14} Drug-herb interactions are particularly important since herbal medications are often taken concurrently with prescription drugs, and some interactions can result in serious clinical consequences of either clinical toxicity or drug failure.¹³⁻¹⁷

St. John's wort is effective for treating mild to moderate depression.¹⁸ It is also a herb commonly implicated with drug-herb interactions.^{13,16,17} Drug interactions that have been associated with St. John's wort include digoxin, theophylline, selective serotonin reuptake inhibitors (SSRIs), amitriptyline, warfarin, oral contraceptives and cyclosporine.¹⁶ Thus, patients

need to be informed about potential for drug-herb interactions.

The purpose of this study was to determine whether pharmacists and natural health product retailers are knowledgeable about the herbal medicine St. John's wort, and whether they provide patients with correct and adequate information regarding uses, cautions and in particular drug-herb interactions. Most of the published studies that have been conducted have focused on self-reported knowledge using questionnaires.^{4,6-7,9} In this study, we attempted to determine the extent of knowledge by documenting the interaction of a pharmacist or health product retailer with a patient/client using the method conducted by Brazier.¹⁹

METHODS

A list of pharmacies and natural health product retailers located in three cities in southern Ontario, Canada (Burlington, Hamilton and Oakville) was generated from a telephone listing resource (Gold Book). For each of the three cities, eight pharmacies and two natural health product retailers were selected by a random procedure. The twenty-four pharmacies and six natural health product retailers were visited over a two-month period. At each pharmacy, the interviewer, posing as a patient, identified a bottle of St. John's wort in the store and approached the pharmacist, asking whether taking St. John's wort would be good for improving mood. At the natural health product stores, the first available employee was approached and asked the same question. If the respondent's answer was yes and they did not elaborate, the interviewer proceeded to ask whether there were any precautions that should be known by someone using the product. If during the conversation the patient/interviewer was questioned as to whether they were on any medications, the patient/interviewer responded that they were currently taking cyclosporine, ramipril, vitamin D, and Echinacea. If asked to explain why they were on the prescription medications it was stated that protein had been detected in their urine and a nephrologist was currently prescribing medications for the condition. At the end of the encounter, the interviewer left the store and documented what had transpired. In the circumstance where they

had been informed that St. John's wort was not good for improving mood, the explanation (if given) was recorded as well.

Prior to the start of the study, an interview outline (questionnaire) was created (Appendix 1). This was used as a memory guide for the interviewer to ensure that the same questions were asked each time and to aid in accurately recording the responses. Each response was digitally coded and the data entered in SPSS 16.0 for Mac. The proportions for the responses to the questions were calculated along with the 95% confidence intervals using GraphPad Software.²⁰ The study protocol was approved by the McMaster University Faculty of Health Sciences Research Ethics Board.

RESULTS

A total of 30 interviews were completed and included in the analysis. Results amongst the participants from the three different cities were similar and the aggregate results are presented here. Of the 30 respondents, 27 (90%) responded that St. John's wort was good for improving mood; all six of the natural health product retailers and 21 of the 24 pharmacists.

Two-thirds of the respondents required prompting by the interviewer before they stated any comments pertaining to safety. After the initial question, fourteen (58%) pharmacists (but

no natural health product retailers) offered additional comments or warnings regarding the safety of St. John's wort. Table 1 summarizes the statements that were made by the respondents. The most frequent comment was that St. John's wort would be safe because it was natural, and the next most frequent comment pertained to possible drug-herb interactions. Two-thirds of the natural health product retailers indicated that St. John's wort was safe and none made any comment about possible drug-herb interactions. Ten percent of respondents (3 pharmacists) did provide some comments about the use of St. John's wort during pregnancy.

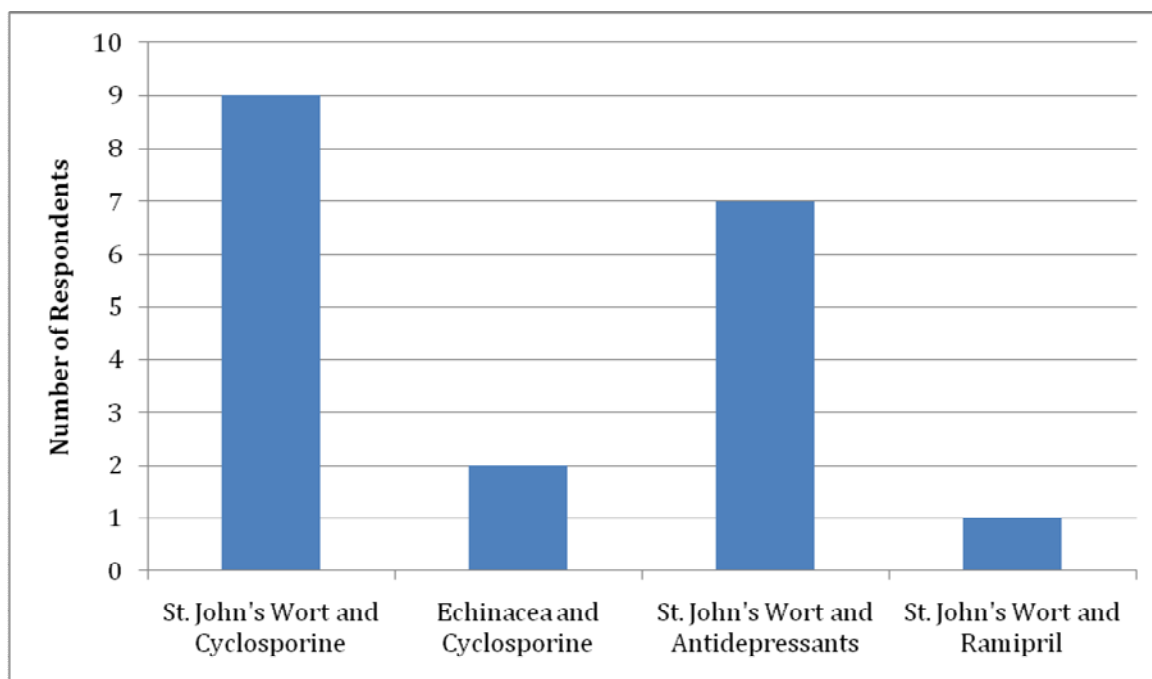
Sixteen (67%) pharmacists and two (33%) natural health product retailers inquired about concurrent medications. Fourteen of the respondents (all pharmacists) offered specific advice regarding potential interactions with drugs. The drug interactions that were discussed are listed in Figure 1. The most commonly acknowledged interaction was St. John's wort and cyclosporine,^{21,22} followed by St. John's wort and antidepressants. Three pharmacists incorrectly stated that Echinacea and cyclosporine interacted, or that St. John's wort interacted with ramipril.²³ Apart from two pharmacists in Hamilton that provided printed material, no additional information materials were provided to the patient/interviewer.

TABLE 1 Safety Related Comments Regarding St. John's Wort, N (% , 95% CI)

Comments	Total 30	Pharmacy 24	NHP* Retailer 6
St. John's wort is safe	13 (43, 27 – 60)	9 (38, 21 - 57)	4 (67, 9.3- 70)
Possible Interactions	12 (40, 25, 58)	12 (50, 31-69)	0
Not effective	2 (6.7, 0.8-22)	2 (8.3, 1.2-27)	0
Consult a health professional	9 (30, 14-54)	8 (33,19-53)	1 (17, 1.1-58)

*natural health product

FIG. 1 Potential Drug-Herb Interactions as Stated by Respondents



DISCUSSION

Overall, the majority of pharmacists and NHP retailers recognized that St. John's wort could be useful for improving mood. However, only two-thirds of pharmacists (and none of the NHP retailers) asked about concurrent medications. Further, despite the fact that the patient/interviewer stated that they were using cyclosporine, in only 14 of the 30 encounters were they advised about a potential drug-herb interaction. This result is surprising, as it has been well documented in the literature that St. John's wort interacts with cyclosporine and could lead to serious consequences.^{16,17,21,23}

There could be several reasons for these findings. First, pharmacists may be uncomfortable counseling patients on this topic if they possess insufficient education and training with respect to these products. This hypothesis is supported by a previous study that reported pharmacists felt they lacked knowledge about alternative medicines and were uncomfortable advising patients about these products.⁶ In addition, pharmacists that did not provide advice regarding drug-herb interactions may not have had quick access to the necessary information about herbal medications.

Only one out of six natural health product retailers asked about concurrent medications and none advised about potential drug-herb interactions. There are a number of reasons for the difference between pharmacists and natural health product retailers. First, pharmacists receive formal training and are licensed by the province before they can practice. Secondly, part of their responsibility is to be knowledgeable about pharmaceutical medications and counsel patients regarding the ones they are taking. Conversely, natural health product retailers are not required to have any formal training and do not need a license to sell these products. As a result, neither familiarity with prescription medications nor the awareness of drug-herb interactions is likely.

This study has several limitations. The small sample size (n=30) may not provide a truly representative response for the community, and the 4:1 ratio of pharmacists to natural health product retailers was arbitrary. Also the sample used pharmacies and natural health product retailers that were limited to three cities in south-central Ontario. As only community-based pharmacies were included in this study the results may not apply to pharmacies associated with institutions such as hospitals.

Another limitation of the study was that although the questions in the interview outline (questionnaire) were simple, the answers given by respondents could be more complex, thus requiring a breakdown of the response. As a result, some answers may not have been interpreted as they were meant to be. In addition, the questions were not pretested and have not been validated.

There was no assessment made to determine whether any of the pharmacists or natural health product retailers had received prior education regarding herbal medications or if they had access to information regarding these products at the site. This information would have been helpful to guide efforts to correct the observed problem.

Although the use of St. John's wort is relatively common amongst the available natural health products, cyclosporine is not a frequently prescribed medication. Therefore, the use of this interaction in the scenario for the study was chosen, not for the frequency of its occurrence, but rather, for the severity of the consequences associated with an interaction. Since the interaction between St. John's wort and

cyclosporine is only one example of a clinically relevant drug-natural health product interaction, how pharmacists and natural health product retailers responded to this issue may not be representative of their knowledge for preventing adverse consequences from other potential interactions.

In conclusion, most pharmacists and natural health product retailers recognize that St. John's wort can be useful for improving mood. However, it appears that most do not readily provide important additional safety information to patients/clients seeking these products. Though pharmacists might be more qualified to provide information about these products to patients, their knowledge regarding drug-herb interactions still appears to be relatively low. With the popularity of herbal remedies on the rise, it is important that natural health product retailers and pharmacists become more educated about potential drug-herb interactions and have access to resources to evaluate potential concerns that involve their patients/clients.

APPENDIX 1 Survey of Pharmacist / Natural Health Product Retailer

Pharmacy/Natural Health Product Retailer: _____

Location: _____

Date: _____

1. Response to "Is St. John's wort good for improving mood?" Yes or No

2. Did they have to be prompted to mention any warnings? Yes or No

3. What was their warning? None or Describe

4. Did they mention any comments about the safety of St. John's wort or Echinacea use in pregnancy? Yes or No

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5. Did they ask what medications you are currently on? Yes or No
6. Did they advise you on potential drug interactions? Yes or No
7. If yes, what did they say were possible drug interactions?
- St. John's wort and cyclosporine
 - Echinacea and cyclosporine
 - Other _____
8. How accurate were they in regards to possible drug interactions?
- Correct (fully or generally correct)
 - Incorrect (partially or completely wrong)
9. Did they suggest that you discuss the use of St. John's wort with a healthcare professional? Yes or No
10. Did they give you any additional information? Yes or No
- Pamphlet or brochure
 - Suggested resources where you could get more information
 - Other _____

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