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Mind the gap: Disclosure of dietary supplement use to hospital and family physicians

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ABSTRACT

Objective: We aim to compare patients' perspectives on communication with their hospital physicians (HPs) and primary care physicians (PCPs) on patients' dietary and herbal supplements (DHS) use.

Methods: We conducted a cross-sectional prospective study among in-patients using structured questionnaires on DHS use. Multivariate logistic regression models assessed variables influencing doctor-related reasons for patients' nondisclosure of supplement use.

Results: Of 452 DHS users identified, 133 (29.4%) used herbs and 319 (70.6%) used non-herbal supplements. DHS users reported that PCPs were more aware of DHS consumption than HPs (70.1% vs. 34.1%, $P < 0.0001$). PCPs initiative to detect supplement use was higher compared with HPs ($P < 0.0001$). Doctor-related reasons for non-disclosure of DHS use were more prominent in a hospital setting. Multivariate logistic regression model suggested association between older patient age and doctor-related non-disclosure ($p = 0.03$). DHS use was recorded in only 33 patients medical files.

Conclusions: Doctor-patient communication concerning DHS use is significantly poorer during hospitalization compared with primary-care settings. A significant barrier for in-hospital disclosure is doctor-related.

Practice implications: Continuity of care between community and hospital physicians regarding patients' DHS use should be improved due to the safety implications of such use. Educating physicians on DHS and improving communication could bridge this gap.

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1. Introduction

In affluent countries, dietary and herbal supplements (DHS) use is a leading complementary and alternative medicine (CAM) modality prevalent in the general population and especially among patients with chronic diseases [1,2]. The prevalence of DHS users in the US is estimated at 40.6 million adults, according to the 2012 National Health Interview Survey [3]. DHS use may challenge doctor-patient communication and consequently lead to reduced effectiveness and increased risks of conventional treatment. In a US

pharmacist-led medication assessment study, Nightingale et al. reported that DHS use is associated with polypharmacy in ambulatory senior adults with cancer [4]. In another survey of primary care army veteran patients in Philadelphia, Goldstein et al. reported a 75% prevalence in the use of vitamins and supplements, with 18% using DHS as medication substitution associated with cost considerations and greater trust of CAM approaches to healthcare [5]. DHS use may be associated with patients health belief models and lead to less medication-use, as reported in a cross-sectional study of the adult Amish population in Pennsylvania [6]. In addition to these DHS-associated risks, DHS use may be related to safety concerns associated with insufficient intake of nutrients and improper nutrition (e.g., in patients with type-2 diabetes) [7], as well as significant DHS-drug interactions that may potentially alter drug pharmacodynamics or pharmacokinetics [8]. In the hospital setting, risks of DHS use of polypharmacy, underuse

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of conventional drugs, and DHS-drug interactions are compounded by challenges characterizing the perioperative milieu, such as increased bleeding and anesthesia risks of DHS-associated sedative effects and altered drug metabolism [9–12]. Despite these safety concerns, DHS use is often self-medicated [13] and its consumption is disclosed by patients to their physicians in only one third of all cases [14]. Reasons for non-disclosure of DHS use may include patients perceived negative attitude on the part of medical professionals towards CAM, and a lack of health providers awareness vis-à-vis DHS use [15]. Doctor-dependent reasons such as “my doctor never asked me” may also lead to non-disclosure of DHS and CAM use and may vary between general practitioners and specialists [16]. Patients' expectations of CAM-related doctor-patient communication is especially notable in primary care where the general practitioner is often expected to listen, actively inquire about CAM, refer it if needed and have good interpersonal skills enabling effective doctor-CAM practitioner communication [17,18].

In a previous study, we identified DHS users in a cohort of hospitalized patients and reported on DHS-related interactions in the context of drug safety [19]. In the current study, we sought to explore DHS disclosure patterns in a cohort of hospitalized patients, with the aim of identifying patients perceived communication barriers with the hospital physicians (HPs) compared with their primary care physicians (PCPs).

2. Methods

2.1. Study site and participants

The study, performed between 2009 and 2014, was a cross-sectional prospective study of patients hospitalized in a public academic medical center in northern Israel (Bnai-Zion, in Haifa). Participation in the study was offered to patients admitted in 12 departments including internal medicine, neurology, rheumatology, obstetrics/gynecology, general surgery, and departments from various surgical specialties. Participants had to be above the age of 18. The Bnai-Zion Medical Center's Institutional Review Boards (Helsinki Committee) approved the study prior to its initiation.

2.2. Study questionnaire design and administration

The questionnaire was constructed and drafted by a multi-disciplinary team of clinicians that included family and internal medicine specialists trained in integrative medicine, a clinical pharmacologist, and CAM practitioners, based on a comprehensive literature review of studies published on DHS use in primary care and hospital settings. Next, the questionnaire draft was presented to three separate focus groups that included 12 CAM practitioners with diverse professional disciplines, 12 physicians with a variety of medical specializations and 12 patients. The focus group participants varied by gender and age, education, and personal experience with CAM and DHS supplement use. They were asked to comment on questions in the questionnaire draft, evaluating each question's relevance and comprehensibility on a Likert scale. They were then asked to write suggestions for improving the phrasing of questions when appropriate and to add questions they deemed necessary. Finally, three of the authors assessed the participants responses qualitatively, and revised the questionnaire accordingly.

The authors decided to use a broad and understandable definition of DHS that is commonly accepted in Israel: “Herbs and dietary supplements which you consume for health needs that include herbs and spices purchased in a shop or picked in the garden and in nature for health purposes, “grandma's home remedies” such as herbal teas and infusions, vitamins (such as vitamin C and E), minerals (such as calcium and iron), and supplements like glucosamine and omega-3 fish oil”.

The refined version of the questionnaire consisted of six questions about patients' demographics, six questions about patients' use or attitudes toward CAM in general and DHS in particular, and two sets of three identical questions regarding DHS disclosure to the HP during hospitalization and to the PCP in the primary care clinic. The three questions were presented as follows: Does your family doctor know about your supplement use? (yes/no options); If so, how did your doctor find out about your supplement use? If you did not disclose DHS use to your doctor, why not? Patients had the option to reply to the two last questions with more than one statement or to add free text under the statement “other reason”. Patients replies to the question of “how did your doctor find out about your supplement use” were grouped as doctor's initiative (“the doctor asked me; “the doctor recommended; “the doctor prescribed”; other free text narratives) or patient's initiative (“I told the doctor”, or other free text narratives). Patients replies to the question “if you did not disclose DHS use to your doctor, why not?” were grouped as doctor-related (“I was concerned about the doctor's response”, “the doctor does not understand these issues”, “the doctor did not ask”, other free text narratives) or patient-related reasons (i.e., “I didn't think it was important”, “because it's not considered a drug”, “I didn't have time to ask”, “because it's natural and can't do damage”, and any other free text narratives). The questionnaire was administered to hospitalized patients by 22 trained research assistants using cultural-sensitive methodology [20].

Among the interviewed patients who reported DHS use, additional data were collected from the patients' medical records regarding socio-demographic characteristics (year of birth, gender, residence, country of birth, education), medical history and reason for hospitalization. Medical files were assessed for mention of DHS use by HPs.

2.3. Data analysis

Data were collated using an Excel spreadsheet (Microsoft 2010) and analyzed using the SPSS software program (version 21; SPSS Inc., Chicago, IL). Descriptive statistics in terms of mean \pm SD, median and ranges were calculated for all the parameters in the study. The Pearson chi square test and Fisher exact test were used to detect differences in the prevalence of categorical variables between groups. Additionally, a *t*-test was conducted to determine whether any differences existed in the continuous variables between the two groups.

We used univariate and multivariate logistic regression analyses to characterize potential variables that might influence doctor-related reasons for patients not disclosing supplement use to their PCP or HP. Univariate analyses included the following variables: age, gender, residence, education, religion, comorbidities (hypertension, hyperlipidemia), inpatient ward type, and DHS type (herbal vs. non-herbal supplements). Based on this analysis, a multivariate logistic regression model included the same variables tested in the univariate analyses. Odds ratios (OR) and their 95% confidence intervals (CI) were calculated by the logistic regression coefficient. $P < 0.05$ was considered to be significant.

3. Results

3.1. Patients' demographics and characteristics

Of the 927 hospitalized patients who agreed to fill in the questionnaire, 458 (49.4%) reported the use of at least one DHS in the month prior to, or during, their hospitalization. Of the 452 DHS users who responded to questions on DHS disclosure to the HP and PCP, we identified two subgroups of DHS users: a group of NHS users consisting of 319 patients using solely non-herbal

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