ORIGINAL RESEARCH

Complementary and Alternative Medicine Use Among Patients With Chronic Kidney Disease and Kidney Transplant Recipients

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Objective: To explore and compare complementary and alternative medicine (CAM) practice among subsets of patients with chronic kidney disease (CKD) and renal allograft recipients.

Design: Cross-sectional survey questionnaire.

Setting: Three outpatient nephrology clinics and dialysis centers in Egypt.

Subjects: A total of 1005 subjects were included in the study (560 predialyis patients with CKD 3-4, 245 patients on hemodialysis, and 200 transplant recipients).

Intervention: Face to face interview with CKD patients. The survey inquired about epidemiological data, types, sources, and patterns of CAM used as well as the effect of CAM use on the patients' interaction with modern medicine and clinical caregivers.

Main Outcome Measure: (1) Prevalence and types of CAM used by CKD patients; (2) Associations and correlates of CAM use including epidemiological features, impact of CAM use on adherence to conventional treatment and interaction of the users with modern medical systems; (3) Differences in CAM practice between subsets of CKD patients viz. hemodialysis patients, CKD 3-4, and transplant recipients.

Results: Overall, 522 patients (52%) were using CAM (64% of predialyis patients, 33% of dialysis patients, and 40.5% of transplant recipients, $P < .001$). Herbal and natural products were the most commonly used type of CAM (78%), followed by mind and body procedures (21.6%). CAM users were more likely to be males (odds ratio [OR] 1.4; 95% confidence interval [CI] 1.1-1.6); employed (OR 1.6; 95% CI 1.2-2); urban residents (OR 1.3; 95% CI 1.2-1.5); have higher income (OR 2.6; 95% CI 2-3.6); and higher education (OR 1.6; 95% CI 1.2-2). Seventy nine percent of CAM users did not report their practices to their caregivers mainly because they were not asked; however, transplant recipients were more likely to report $P < .02$. Compliance to medical treatment was affected in 4.2% of users. Thirty natural products were identified as well as 4 body and mind procedures. The most commonly used herbs were Nigella sativa, Hibiscus sabdariffa, and Cymbopogon proximus. Potentially harmful CAM included intake of licorice and vinegar.

Conclusions: Use of traditional medicine is highly prevalent among CKD patients. Some of these practices are potentially harmful and may affect patient compliance to modern medicine. Physicians commonly ignore to inquire about these practices, which frequently reflect patient frustration with modern medicine efficacy and/or price.

Introduction

THE UNDERSTANDING OF chronic kidney disease (CKD) in modern medicine started being recognized in the early years of the 19th century, and ever since there has been an endless pursuit to develop adequate treatment for this ailment.[1] However, despite the advances of modern day medicine, traditional therapies still prevail till this very day even among the well-educated and in developed communities.[2] The prevalence of using complementary and alternative medicine (CAM) varies in the general population from 10% to 40% in various European nations, 49% in Australia, 40% to 60%in the USA, and up to 75% in Sub-Saharan Africa. Patients with chronic disorders, including CKD, have shown a higher prevalence of CAM usage. The herbal product industry, which is only one form of CAM, occupies more than 20% of the global medical market turnover with a steady annual growth of about 3% to 5%. The projected market turnover in 2015 is valued to be 30 billion dollars in some estimates; however, a more detailed report by Global Industry Analysts puts the estimate at 93 billion dollars.[2–8]

Most CAM practices are deemed to be at least harmless. However, several alarming points stand out. First, some of these practices can be hazardous and may induce nephrotoxicity and hypertension. Second, many herbal therapies interact with conventional drugs including

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immunosuppressive medications used by transplant recipients potentially exposing them to allograft rejection. Third, most patients do not report use of CAM to their physicians or nurses. Fourth, it is not uncommon for CAM users to substitute it for their medications and thus become less compliant to conventional therapy. Last, but not least, the patterns and factors governing these practices are not well studied among CKD patients including transplant recipients. Nonetheless, the differences between patterns of practising CAM among CKD patients at different stages of their disease viz. pre-end stage renal disease (ESRD), dialysis, and transplantation are not reported.[3,5,9]

This study aims to investigate and compare CAM practice among subsets of patients with kidney disease including pre-ESRD patients, hemodialysis patients, and renal allograft recipients. The survey intends to answer questions regarding the patterns and types of CAM usage, the epidemiological factors governing it, its impact on adherence to conventional treatment, and interaction of the users with modern medicine.

Subjects and Study Design

Study Population

The study was performed in the outpatient clinics of 3 centers including a central university hospital, a rural public hospital, and 1 private practice centre in Egypt. Patients older than 18 years who agreed to participate in the survey were included during the 8 months interval during which the study was conducted, between November 2013 and June 2014. All participants were diagnosed with any of the following for at least 6 months: CKD Stages 3-4, CKD Stage 5 on hemodialysis, and kidney transplant recipients with functioning allografts. Patients who had mental or psychological limitations that hindered their capability to respond to the survey or manage their medications were excluded. Ethics committee approval and approval of the heads of contributing centers were obtained.

Preparation and Implementation of the Survey

The survey questionnaire was developed to achieve the study aims based on the literature and experience of the investigators. An initial pilot study was performed, on 10 patients to test the clarity and feasibility of the questionnaire, which was subsequently modified. Cases surveyed in the pilot investigation were not included in the final study results.

The survey was performed face to face individually on an outpatient basis using a structured questionnaire with 23 closed-ended dichotomous and polytomous questions as well as open-ended questions to explore points not included in the questionnaire. The survey included 3 sections: the first section collected social-epidemiological data. Personal income was determined by dividing family income by number of family members to obtain the income/person/month; and if the respondent refused to specify income, it was inferred from occupation and residence. The second section was concerned with the interaction between the CAM user and the conventional medical system including adherence to therapy and reporting the practice to the treating physician. The third section collected data about the type, source, and pattern of CAM use as well as each individual's reported medical indication for the practice and the mode of preparation of natural products before use. The investigators of this study met on a regular basis to evaluate the data gathering before and after the pilot study as well as during study implementation to confirm that the questionnaire was comprehended and performed in a standardized manner across the different sites of data collection.

Definitions

CAM use was recorded only if used more than once over the 6 months preceding the survey and if practised with the sole purpose of therapy. If more than 1 type of CAM was used by an individual patient, they were all recorded, and the most frequently used type was reported as the principal type of CAM used by the patient. The definition and classification used were those of the National Center for Complementary and Integrative Health to define and classify CAM practice. This classifies CAM into: (1) natural products e.g., botanical products; (2) mind and body practices e.g., acupuncture, massage, cautery; (3) others.[10] Consumption of vitamins and minerals was not included in our survey as a form of CAM.

Statistical Analysis

Statistical analysis was carried out using Statistical Package for Social Science (SPSS) software version 16 (SPSS Inc., Chicago, Illinois). Categorical data were summarized by frequency and proportion; differences were assessed by the Pearson chi-square (χ^2) test. Odds ratio (OR) and 95% confidence interval (95% CI) were reported when relevant. Quantitative variables were normally distributed and were presented as mean and standard deviation; comparisons were made using Student t test. Multiple logistic regression was used to confirm the independence of factors associated with CAM. Statistical significance was assumed at $P < .05$.

Results

Epidemiological Data

A total of 1005 subjects were included in the study including 560 patients with CKD 3-4, 245 patients on hemodialysis, and 200 transplant recipients. Of 1005 patients included in the survey, 522 (51.9%) reported the current use of CAM. Epidemiological patient characteristics are shown in Table 1.

CAM users were more likely to be males (OR 1.4; 95% CI 1.1-1.6); employed (OR 1.6; 95% CI 1.2-2); urban residents as opposed to rural (OR 1.3; 95% CI 1.2-1.5). Individuals with an income higher than 200 Egyptian pounds