

Traditional medicine use in surgical patients in a South African tertiary hospital

GD Nethathe^{a*}, T Matamba^b, J Malumalu^b, N Dladla^b, T Bayibayi^b and SL Russell^c

^aFaculty of Health Sciences, Chris Hani Baragwanath Academic Hospital, University of the Witwatersrand, Parktown, Gauteng, South Africa

^bChris Hani Baragwanath Academic Hospital, University of the Witwatersrand, Johannesburg, South Africa

^cDepartment of Anesthesia and Perioperative Medicine, University of Manitoba, Canada

*Corresponding author, email: Gladness.Nethathe@wits.ac.za

Background: The use of traditional medicine (TM) in South Africa is reportedly high. TM use in a South African surgical population presenting for elective surgery is unknown.

Aim: The study aim was to survey the perioperative usage of TM in a South African population presenting for elective surgery at a tertiary hospital.

Methods: A prospective, contextual and descriptive study was carried out on adults presenting for elective surgery at a tertiary South African hospital.

Results: During a 2 month study period 495 patients were interviewed (97% response rate). The mean age was 46.6 years (SD 14.8) with 34% male and 66% female. Patients underwent orthopaedic (42%), general (32%) and gynaecological (26%) surgery. Fifty per cent of the participants were on chronic medication. Thirty-nine per cent of participants reported past TM use and 7% admitted to current TM use. The most common reason for TM was for cleansing purposes (41%) followed by pain (17%). Seven (4%) participants reported adverse events attributed to TM use with 46% unsure whether an adverse event occurred. Factors associated with current TM use were planned surgical procedure (p -value = 0.009), known positive HIV status (p -value = 0.04), and current arthritic medication use (p -value = 0.002).

Conclusion: Perioperative TM use is clinically relevant and should be considered in elective surgical patients. However, TM use in the current survey was found to be lower than that quoted in the literature.

Keywords: complementary therapies, elective surgery, ethnopharmacology, perioperative medicine, traditional medicine

Introduction

The World Health Organization (WHO) has defined traditional medicine (TM) as 'the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness'.¹

The use of TM by the South African population is estimated to be 70%.² The estimate for patients presenting for surgery, extrapolated from international literature on complementary and alternative medicine (CAM) use, is likely to be higher.³⁻⁶ The prevalent use of TM use has been addressed by the latest WHO Traditional Medicine strategy with its first objective to *build the knowledge base for active management of traditional medicine*.¹ Traditional medicine is mainly dispensed by traditional practitioners; unfortunately, there is lack of satisfactory regulation of these traditional healers and the medicines themselves.³

A number of studies have investigated the use of traditional medicine and concerns have been raised about the potential for drug interactions and adverse effects with this medication.^{3,7-10}

Very few studies if any have looked at the use of African TM in a South African patient population booked for elective surgery. The concern in this patient population using TM is potential pharmacokinetic and pharmacodynamic interactions with drugs

administered during their perioperative course in addition to physiologic changes affecting healing, for example bleeding.^{3,7}

This study was done to assess the use of traditional medicine in an elective surgical population in Soweto, South Africa.

Methods

This prospective, contextual and descriptive study was carried out at Chris Hani Baragwanath Academic Hospital (CHBAH), a tertiary hospital situated in an urban setting. Approval was obtained from the Human Research Ethics committee of the University of the Witwatersrand (number M110935) prior to the commencement of the study.

Convenience and consecutive sampling was used for participant recruitment. After informed consent was obtained from the participants, data were collected by a written or an interview-administered questionnaire. Participants were over the age of 18 years and were scheduled for elective anaesthesia for gynaecologic, orthopaedic or general surgical procedures. A standard questionnaire (supplementary material) was used, which was in English; however, if a participant preferred, the questionnaire was presented by the investigator in his/her preferred language. Data collected included the participants' demographics (age, gender, level of education, employment and monthly income), clinical history (type of operation scheduled, co-morbidities, chronic medication use) and traditional medicine usage (past use, current use, which was defined as within 6 weeks of surgery, reason for use, perceived efficacy, adverse events and the cost of medication).

Table 1: Socio-demographic characteristics

Factor	n	%
Age (n = 494)	Mean 46.6 years SD 14.8	
Gender (n = 495)		
Male	168	34
Female	327	66
Level of education (n = 486)		
No formal education	19	4
Primary education	75	15
Secondary education	372	77
Tertiary education	20	4
Employment status (n = 489)		
Unemployed	208	43
Pensioner	93	19
Student	5	1
Housewife	2	0.4
Skilled/paid employment	181	37
Place of residence (n = 495)		
Metropolitan	465	93
Not metropolitan	14	3
No response	16	3

Data collection occurred over a 2 month period (August 2012 to October 2012). Data were collected on a structured spreadsheet. The questionnaire was administered by three of the investigators. Pearson's chi-square test was used to determine association between TM use and factors such as gender, level of education and employment status. A p -value < 0.05 was considered statistically significant. Incomplete data were excluded from the analysis. Percentages were rounded up to the nearest whole number.

Results

There were 523 potential participants with 508 eligible to participate (15 patients were not able to give informed consent). From this group 495 participants agreed to be interviewed (response rate 97%).

Socio-demographic characteristics

The socio-demographic characteristics of these respondents are given in Table 1.

Table 2: Patients' medical history

Factor	n	%
Surgical discipline (n = 495)		
1. Gynaecological surgery	129	26
2. General surgery	159	32
3. Orthopaedic surgery	207	42
Number of co-morbid conditions (n = 495)		
None	244	49
One or more illness	251	51
Chronic medication (n = 494) ^a		
Yes	227	46
No	267	54
Anti-retroviral medication	38	8
Anti-hypertensive medication	148	30
Hypoglycaemic medication	33	7
Analgesics	26	5
Bronchodilators	8	2
Other ^b	53	11
Currently taking medicine from a friend or neighbour (n = 493)	14	3

^aNumbers do not add up to total as participants could be on more than one chronic medication.

^bThis included conditions such as psychiatric disorders, renal dysfunction and malignancy.

The majority were female (66%) with a mean age of 46.6 years and a range of 18 to 90 years.

Most respondents had a secondary education (77%), with 15% having a primary education only; 4% of respondents had no formal education or tertiary education. Forty-three per cent of participants were unemployed, 19% were pensioners, 1% were students and 37% had paid employment. Most employed participants were in a low-income bracket; the average monthly income was ZAR 3739 (US\$ 446¹), (range ZAR 500–5300, US\$ 60–631), median ZAR 2800 (US\$ 334). The majority (93%) of respondents lived in the surrounding metropolis.

Participants' medical history

The clinical history of the respondents is tabulated in Table 2. Most participants were undergoing orthopaedic procedures (42%), 32% were having general surgical procedures whereas 26% of participant were undergoing gynaecological procedures. Fifty-one per cent of participants declared at least one co-morbid condition, the predominant condition been hypertension (33%), followed by human immunodeficiency virus (HIV) positive status (11%) and diabetes mellitus (8%).

Chronic medication was reported in 46% of the sample with anti-hypertensive medication being predominant (30%), followed by anti-retroviral medication (8%).

Traditional medicine use

Thirty-nine per cent of respondents ($n = 192$) reported that they had used traditional medicine in the past with 7% ($n = 32$) reporting that they had taken the medication in the preceding 6 weeks. Two respondents reported that they used the TM for the same reason as their hospital condition. Other reasons were for 'cleansing' (41%), analgesia (17%), wound healing (9%), 'protection' (4%), a chronic medical condition (5%), sexual health (4%), 'immune system support/energy/strength' (3%) and to combat infection (5%). The majority of TM users (66%) found the medicine helpful, 9% did not answer the question and 28% did not find that the medicine helped. Four per cent of TM users had an adverse reaction to the medication, 51% stated 'No' and 46% were 'Not sure'. Gastrointestinal disturbances comprised the predominant adverse event stated (43%) along with neurological (14%), bleeding (14%) and jaundice (14%).

With regard to cost, of those that reported TM use, eight respondents (2%) stated they received the medication free of charge, 148 respondents (30%) paid < ZAR 500 (US\$ 60) and 9 (2%) paid between ZAR 500–1000 (US\$ 60–119), 4 (1%) paid more than ZAR 1000 (US\$ 119) and 7% ($n = 33$) did not respond to the question.

Factors associated with TM use

There was no association between TM use and gender, level of education, employment status, residence locale, co-morbid conditions and the use of chronic medication. There were associations between current TM use and language (Pearson's chi-square 36.67 and p -value 0.03), with obtaining medication from a neighbour or friend (Pearson's chi-square = 3.85 and p -value = 0.05), with elective orthopaedic surgery (Pearson's chi-square = 9.3828, p -value = 0.009), positive HIV status (Pearson's chi-square = 4.27 and p -value = 0.04) and medication for arthritic conditions (Pearson's chi-square = 9.17 and p -value = 0.002). There was no association with concurrent anti-retroviral medication (Pearson's chi-square = 1.04, p -value = 0.31).

Discussion

The purpose of this survey was to determine the prevalence of traditional medicine use in patients undergoing selected elective surgical operations in an urban tertiary hospital in South Africa. We determined the usage of TM and explored its factors and associations.

This is to our knowledge the first survey done in a perioperative setting in this country.

The demographic profile of the sample was female dominated, most likely due to the inclusion of elective gynaecological surgery patients, whereas the employment status was congruent with the national South African employment data.

We found the number of patients who admitted to using TM to be lower than expected at 39% with a current use of 7%. This surprisingly low incidence of TM use is in conflict with data available from existing literature.^{1,3,7} This low incidence could suggest that there is a lower use of TM in more recent times or a shift from the use of traditional to Western medicine in an urban population. This may also be explained by a combination of recall bias of the participants, non-disclosure due to perceived bias and stigma against alternative medicine.

As is consistent with other studies on TM use, no significant associations were found between TM use and gender and with the level of education.^{11,12} However, contrary to findings from a Nigerian-based study there was no association with employment status.¹¹ This could be explained by the patient sample all being drawn from a low- to no-income group. There was an association with language preferences, with TM users speaking Bantu languages rather than English or Afrikaans.

Relevant reasons for taking TM, such as analgesia, wound healing, treating chronic medical conditions, improving overall health and combating infection, are prevalent conditions in hospital patients and highlight the possibility of significant drug interactions in this population.

The definition for current TM use as being within 6 weeks of the surgical procedure is used because of the lack of knowledge concerning the active ingredients in preparations and elimination of TM components. Current TM use was associated with planned elective orthopaedic surgery. This may be indicative of a more holistic approach to healthcare by respondents or inadequate pain relief. Of note is that bleeding as a possible complication of TM use may be deleterious for this patient group.

In this analysis the only co-morbid condition associated with current TM use was coexisting positive HIV status. Possible explanations for this may include inaccessibility to antiretroviral medication or perceptions and cultural beliefs pertaining to this infection. This raises a concern of polypharmacy. Interactions of TM with antiretroviral therapy are a major concern as they could lead to treatment failure or significant side effects as a result of drug interactions with antiretroviral treatment regimens.^{9,10}

Of the TM users, 46% were not sure if they had experienced adverse events and 4% reported a bad reaction with its use. Notably bleeding and jaundice as adverse reactions is of concern in patients undergoing operative procedures.

The data-collection tool of a questionnaire accounts for a limitation of interview-style surveys. An anonymous survey, a traditional healer or a lay person administering the questionnaire may yield a different result. It is important to note that history taking during a routine preoperative visit is conducted in much the same way as the survey was conducted. The high response rate was due to direct patient contact. Another limitation of this study includes possible language barriers. The questionnaire was only in English; however, the interviewers and most patients were multilingual.

Knowledge of the prevalence of TM use in a perioperative patient population is important as TM is known to have a spectrum of clinical effects such as potential drug interactions as well as metabolic and haematological derangements. The questionnaire was conducted in a population presenting for elective surgery; the use of TM might differ in patients requiring urgent or emergency surgery or in other in-hospital patient populations such as patients with significant impairments in physiologic reserve.

Conclusion

This study determined the usage of TM and explored its factors and associations in patients undergoing elective surgery in a South African tertiary hospital. Concurrent TM use was found to be lower than that quoted in the international literature.

Supplementary material

Supplementary material for this article can be accessed here: <http://dx.doi.org/10.1080/22201181.2016.1187497>.

Acknowledgement – K Kamndaya, School of Public Health, University of the Witwatersrand, Johannesburg, South Africa for assistance with statistical analysis.

Declaration – The authors received no funding for this study.

Conflict of interest – There was no conflict of interest to disclose.

Note

1. US\$ to SA Rand foreign exchange rates given are for August 31, 2012.

References

1. World Health Organisation. *WHO Traditional Medicine Strategy 2014–2023*. 2013. Available from: http://www.who.int/medicines/publications/traditional/trm_strategy14_23/en/.
2. South African Traditional Medicine Research Group (SATMERG) [cited 2015, Sep 2]. Available from: [https://www.uwc.ac.za/Faculties/NS/Pharmacy/Pages/South-African-Traditional-Medicines-Research-Group-\(SATMERG\).aspx](https://www.uwc.ac.za/Faculties/NS/Pharmacy/Pages/South-African-Traditional-Medicines-Research-Group-(SATMERG).aspx).
3. Nethathe G, Russell S. Traditional medicine use and the anaesthetist. *South African J Anaesth Analg*. 2014;20(6):221–5. doi:10.1080/22201181.2014.983711.
4. Skinner CM, Rangasami J. Preoperative use of herbal medicines: a patient survey. *Br J Anaesth*. 2002;89(5):792–5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12393786>.
5. Ang-Lee M, Moss J, Yuan C-S. Herbal medicines and perioperative care. *JAMA*. 2001;286:208–16. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/16931972>.
6. Tsen LC, Segal S, Pothier M, et al. Alternative medicine use in presurgical patients. *Anesthesiology*. 2000;93(1):148–51. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/10861158>.
7. Dippenaar J. Herbal and alternative medicine: the impact on anesthesia. *South Afr J Anaesth Analg*. 2015;21(1):15–20.
8. Popat A, Shear NH, Malkiewicz I, et al. Mechanism of Impila (*Callilepis laureola*)-induced cytotoxicity in Hep G2 cells. *Clin Biochem*. 2002;35(1):57–64. doi:10.1016/S0009-9120(02)00271-0.
9. Müller A, Kanfer I. Potential pharmacokinetic interactions between antiretrovirals and medicinal plants used as complementary and African traditional medicines. *Biopharm Drug Dispos*. 2011;32:458–470. doi:10.1002/bdd.775.
10. Mills E, Foster BC, van Heeswijk R, et al. Impact of African herbal medicines on antiretroviral metabolism. *AIDS*. 2005;19(1):95–7.
11. Oreagba IA, Oshikoya KA, Amachree M. Herbal medicine use among urban residents in Lagos, Nigeria. *BMC Complement Altern Med*. 2011;11(1):117. doi:10.1186/1472-6882-11-117.
12. Tabuti JR, Kukunda CB, Kaweesi D, et al. Herbal medicine use in the districts of Nakapiripirit, Pallisa, Kanungu, and Mukono in Uganda. *J Ethnobiol Ethnomed*. 2012;8(1):35. doi:10.1186/1746-4269-8-35.

Received: 13-01-2016 Accepted: 27-04-2016