ORIGINAL ARTICLE

The availability of Misoprostol in pharmacies and patent medicine stores in two Nigerian cities

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Abstract

Context: As the glaring inequity in maternal death ratios becomes more apparent between countries in the Northern and Southern Hemispheres, health experts try to achieve a reduction in their own nations' pregnancy-related deaths. Perhaps no research holds as much potential to make a difference in the developing world as research conducted on the gynaecological indications of misoprostol. The media tend to portray that misoprostol is widely available among private sector pharmaceutical distributors in Nigeria, yet evidence is lacking to that effect.

Objective: To examine the availability of misoprostol in two major Nigerian cities, in order to explore the supply side of misoprostol six months after the drug's registration for management of postpartum hemorrhage in Nigeria.
Methods: This was a cross sectional descriptive study involving proprietors, pharmacists or vendors of pharmaceutical and patent medicine outlets in two Nigerian cosmopolitan cities, Lagos and Abuja. They were interviewed using a semi-structured questionnaire in May and June 2006 in Abuja and Lagos respectively.

Result: Misoprostol was not well-known or widely available in either city. Out of nearly six hundred shops surveyed, only 18 (4%) reported misoprostol cost information, indicating they had stocked the drug in the past, and only 15 of these (3%) currently had misoprostol on their shelves. When pharmacists and drug sellers who stocked misoprostol were asked what it was recommended for, treatment or prevention of postpartum hemorrhage was not mentioned.

Conclusion: Concerted efforts to disseminate scientific information and educate all levels of health care providers should accompany new policy and protocol changes to achieve maximum national impact.
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Key words: Availability, pharmacists, postpartum haemorrhage, misoprostol, Nigeria.

Introduction

As the glaring inequity in maternal death ratios becomes ever more apparent between countries in the Northern and Southern Hemispheres, national health experts continue attempts to achieve a lasting and measurable reduction in pregnancy-related deaths. Research on the drug misoprostol in developing world may contribute to achieving this. The drug's newly proven efficacy in the management and prevention of postpartum hemorrhage (PPH), pregnancy termination, labour induction and cervical priming is causing widespread re-evaluation of existing evidence even as the world awaits new WHO guidance and protocols in the gynaecologicial indications for its use. Combined with evidentiary success are the drug's numerous benefits that make it appealing for use in developing countries; non-parenteral routes of administration, a strong safety profile, a long shelf-life, stability in extreme temperatures and low cost[1]. Misoprostol is currently on the WHO Essential Drug List for treatment of gastric ulcers, for induced abortion (in combination with mifepristone) and for induction of labour[2]. In January 2006, the Nigerian National Agency for Food and Drug Administration and Control (NAFDAC) approved the registration of misoprostol for the management of postpartum hemorrhage[2,3]. The WHO is presently considering new clinical evidence that will most likely result in the addition of misoprostol for same[4]. It seems inevitable that further research and review for other gynaecological uses of misoprostol, including misoprostol alone for management of incomplete abortion, will be forthcoming. Incidentally, Nigeria became the first country in the world to register misoprostol for prevention and treatment of postpartum hemorrhage[3,4]. Media reports surrounding these policy changes and increased international attention to misoprostol among gyneacologists convey the perception that misoprostol is widely available among private sector pharmaceutical distributors in Nigeria5, however, evidence is lacking to that effect. This study examines the availability of misoprostol in pharmaceutical and patent medicine outlets in two major Nigerian cities, Lagos and Abuja.

Methods

This was a cross sectional descriptive study involving proprietors, pharmacists or vendors (as may be applicable) of pharmaceutical and patent medicine outlets in two Nigerian cosmopolitan cities, Lagos and Abuja. They were interviewed using a standardized pro forma in May and June 2006 in Abuja and Lagos respectively. In Lagos, data was collected from both pharmacy shops and patent medicine stores (PMS) because these two outlet types operate freely in Lagos and they were the main source of medications in the state. However in Abuja, the study was limited to pharmacy shops only because the PMSs were not licensed to operate in the city.

In Nigeria, pharmacy shops and patent medicine stores are the most convenient and accessible sales outlets for medication for the majority of the population. Patent medicine stores are usually small in size (less than four shelves) with license to sell only over-the-counter drugs. Pharmacy shops serve the same purpose as patent medical stores but are usually larger and are allowed to sell prescription as well as over-the-counter medicine. Pharmacy shops are registered with the Pharmaceutical Council of Nigeria (PCN) and are required to have at least one pharmacist on staff.

Each metropolitan area maintained a unique sampling plan. In Abuja, a list of 220 registered pharmacies from the Association of Community Pharmacists of Nigeria (Abuja chapter) was used as the sampling frame. Although we attempted to interview all 220 shops in the frame, interviews were completed at only 191 (87%) shops. The remaining shops had either been closed down or were locked at the time of the survey during business hours; the data collector did not attempt to re-visit the locked shops. Three of the outlets, did not consent to participate.

In Lagos, where no metropolitan shop registration existed, a stratified multistage sampling technique was used. From the 20 Local Government areas (LGAs) in the state, targets of four urban, two semi-urban and one rural LGA were selected by the research team. The seven local government areas (LGAs) were randomly selected from their subgroups of urban, semi-urban and rural LGAs. A proportionate distribution of 70 interviews in each urban LGA and 40 in each of the semi-urban and rural LGAs was agreed upon to achieve the desired sample size of 400 interviews. Each of five trained data collectors was then assigned to one to two LGA(s) and asked to enumerate all pharmacies and patent medicine stores in the LGA.

An additional target number of pharmacy and patent medicine shop interviews was assigned to each

stratum using a proportion of one pharmacy shop to three patent medicine stores based on the pattern in the frame of 4,891 pharmacies and PMS's that was obtained. The desired sample size of 400 was calculated using the minimum sample size determination formula for categorical data6. This formula combines an apriori level of alpha at 5% and an allowable margin of error of 0.05. All cost information was denominated in Nigerian Naira (NGN). Data were analysed using SPSS statistical software package version 11.0. Results are presented in simple frequencies, means and medians.

Results

Five hundred and ninety one outlets participated in the survey. These comprised 191 and 100 pharmacy outlets in Abuja and Lagos respectively and 300 PMS in Lagos. Misoprostol was neither well-known nor widely available in either city. Table 1 shows the reported availability of misoprostol in the two study locations. The unavailability of misoprostol was similar in both cities. Nine outlets (5%) in Abuja, compared to six (2%) in Lagos, had misoprostol at the time of data collection. This is three percent of the total outlets surveyed. Six percent however claimed to have stoked the medication in the past.

Responses to cost and sales data for misoprostol were limited to shops with the drugs in stock at time of the visit. Results are presented in Table 1. The median cost of purchasing one "sachet" of misoprostol (reported to be ten 200 microgram tablets) was NGN 128 (approximately US$1). The median cost for a sachet of misoprostol was lower in Abuja (NGN 118) than in Lagos (NGN 158). All of the cost and sales information came from pharmacy shops. No patent medicine stores responded to this question. Most of the sales points reported infrequent sales of these drugs. The median length of time to sell one "sachet" of misoprostol ranged from one to six weeks with a median report of one month. Length of time to sell was shorter in Abuja (two weeks) than in Lagos (four weeks).

Table 1. Median cost to purchase and estimated cost and time to sell one sachet of misoprostol in Abuja and Lagos among shops that had ever stocked the drug

	N	Cost/day
Median cost of purchasing one sachet of ten 200 microgram tablets in Naira	18	128
Range of cost of purchasing one sachet of ten 200 microgram tablets in Naira	18	38 - 390
Median estimated time required to sell one sachet (days)	16	30
Range of estimates of time required to sell one sachet (days)	16	7 – 180

Discussion

Nigeria's maternal mortality ratio is one of the highest in the world at 800 per 100,000 live births[7]. Out of every one hundred Nigerian deliveries, fifteen to twenty will result in postpartum hemorrhage[3]. Approximately two-thirds of Nigerian women deliver outside of a health facility[8] while treatment and management of post-abortion and post-delivery complications remain elusive to the majority of the population[9]. Access to essential obstetric care is poor; a 2003 study reported that only 4.2% of the country's public facilities met international standards for essential obstetric care[4]. While there is no alternative for more national commitment and funding for maternal health services, important low-cost pharmaceuticals like misoprostol and many other technological advances offer some immediate public health promises for improved health of women and maternal health outcomes in general. This research was conducted in order to determine the extent of the availability of one such drug, misoprostol, in Nigerian pharmacies and patent medicine stores six months following the drug's expanded registration for management of postpartum hemorrhage. Out of nearly six hundred shops surveyed at the time of this study, only 18 (4%) reported misoprostol cost information, indicating they had stocked the drug in the past and only 15 of these (3%) currently had misoprostol on

their shelves. In a similar study conducted in India in 2004, more than half of 209 chemists' stocked misoprostol[11]. The focus on PMS and pharmacy stores was because these outlets are the first point of call and main source of medications in Nigeria. In most developing countries, pharmacies are widely used as a supplier of drugs as well as a primary source of medical advice, especially for the poor and less educated[11,12]. In Abuja, patent medicine stores are more strictly monitored and prevented from selling prescription drugs, for this reason this study was limited to only pharmacy stores. In Lagos, however, the patent medicine stores remain primary sources of medicine and medical advice yet none of them reported current or past sales of misoprostol. It seems unlikely that utilization of pharmacies for medical advice will change in the near future, as such, this reality is open to abuse as well as opportunity. While there may be a network of medical providers who understand the role of misoprostol in managing different gyneacological conditions, this information has not elicited adequate supply of misoprostol in the country. Providing pharmacists with current and reliable scientific information, including new regimens and dosage information can certainly improve maternal health outcomes and may well increase interest in important essential drugs. Furthermore, health care providers need to demand drug availability and ensure that new drugs are available through government and private distributors throughout the nation and not only to the elite few providers in urban areas.

An earlier study on misoprostol availability in 2005, presented results from 23 countries (including some in Africa), reported that, in the four countries examined closely, pharmacists were a general source of information for pregnancy termination and most knew about self-medication with misoprostol[11]. Widespread media reports and international attention have added to the popular perception that misoprostol is easily accessible and available to Nigerian women, pharmacists and providers are of the opinion that the drug is being abused, at least in urban areas. This belief seems unlikely considering these results documenting the limited availability of misoprostol. Some of these reports may be perpetuated by anti-abortion activists trying to link misoprostol and increased abortion complications or birth defects[14]. It may also be that providers use their social networks to access information from a few experts in the field who know where to look for gyneacological medications including misoprostol.

This study indicates that misoprostol availability is extremely limited in urban Nigeria. In this study we did not attempt to conduct a nationally representative survey, instead we focused on two major metropolitan areas, Abuja and Lagos. We consider Lagos to be the national port of entry for most pharmaceuticals, thus we have no reason to believe that surveys in other Nigerian cities would result in higher reports of drug availability.

Although we did not ask pharmacists directly, there does not seem to be a convincing explanation for the limited availability of misoprostol. It seems possible that individual attitudes or the perception that misoprostol will be "misused" by women seeking to induce their own abortions could become a barrier to making this more available in the Nigerian marketplace. Some pharmacists may have been reluctant to admit selling misoprostol even though we were cautious to ask about a larger number of gyneacological drugs during the survey. The availability of misoprostol over-the counter has been cited for widespread transformation of the clinical presentation of postabortion patients in countries such as Brazil and South Africa where cases of serious morbidity as a result of unsafe abortion procedures declined as awareness and use of over-the-counter misoprostol increased [15-17]. A policy change, such as the recent registration of misoprostol in Nigeria, without attention to channels of information, supply and distribution will have limited success. Improving maternal health will require innovation and determination through multiple avenues and interventions. Medical innovations have to be accompanied by education and demand creation, a far more complicated task. Concerted efforts to disseminate scientific information and educate all levels of health care providers should accompany new policy and protocol changes to achieve maximum impact.

Declaration of Interest: The authors declare no competing interest.

References

1. Robert A, Nezamis JE, Phillips JP. Inhibition of gastric secretion by prostaglandins. Am J Dig 1967; 12:1073-6.

2. Hemmerling A.. The safety of misoprostol. Int J Gynecol Obstet 2006; 94(Suppl 2):S149-50.

3. Liese G. Old drug's new use will save Nigerian women's lives. [online] 2006. Available from: http://www.berkeley.edu/news/media/releases/2006/03/28_misoprostol.shtml. Accessed 11 March, 2007.

4. Campbell M, Holden M. Global availability of misoprostol. Int J Gynecol Obstet. 2006; 94(Suppl 2):S151-2.

5. Shiffman J, Okonofua F. The state of political priority for safe motherhood in Nigeria. BJOG 2007; 114:127-133.

6. Wunsch, D. Survey research: Determining sample size and representative response. Business Education Forum 1986; 40(5): 31-34.

7. Department of Reproductive Health, World Health Organization. Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF and UNFPA. Geneva. 2001

8. National Population Commission (Nigeria) and ORC Macro. Nigeria Demographic and Health Survey 2003. Calverton, Maryland. 2004.

9. Fatusi AO and Ijadunola KT. National Study on Essential Obstetrics Care Facilities in Nigeria: Technical Report of the Federal Ministry of Health 2003

10. Ganatra B, Manning V, Suranjeen PP. Availability of Medical Abortion Pills and the Role of Chemists: A Study from Bihar and Jharkhand, India. Reproductive Health Matters 2005; 13(26):65-74.

11. Lara D, Abuabara K, Grossman D, Diaz-Olavarrieta C. Pharmacy provision of medical abortifacients in a Latin American city. Contraception 2006; 74: 394-9.

12. Igun UA. Why we seek treatment here: retail pharmacies and clinical practice in Maiduguri, Nigeria. Soc Aci Med 1987; 24: 689-95

13. Sherris J, Bingham A, Burns MA, Girvin S, Westley E, Gomez PI. Misoprostol use in developing countries: results from a multicountry study. Int J Gynecol Obstet 2005; 88(1):76-81.

14. Xenophilia. Birth Defects of the Human Head. [online] 2004. Available from: http://www.xenophilia.com/explicit.htm last accessed 14 May, 2007.

15. Jewkes R, Brown H, Dickson-Tetteh K, Levin J, Rees H. Prevalence of morbidity associated with abortion before and after legalisation in South Africa. BMJ 2002; 324:1252-3.

16. Grimes DA, Benson J, Singh S, Romero M, Okonofua FE, Shah IH. Unsafe abortion: the preventable pandemic. The Lancet 2006; 368:1908-1919.

17. Billings D. Misoprostol Alone for Early Medical Abortion in a Latin American Clinic Setting. Reproductive Health Matters 2004; 12(24 Suppl):57-64.