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The prevalence of therapeutic injections in Ethiopia: from the patients' and health care providers' perspectives

Etiyopya'da tedaviyle ilgili enjeksiyonların prevalansı: hasta ve sağlık hizmeti verenler açısından

Azeb Zewdie[1], Nasir Tajure Wabe[1]

[1]Clinical Pharmacy Unit, Department of Pharmacy, College of Public Health and Medical Science, Jimma University, Jimma

Abstract

Administration of therapeutic injection is among the most frequently performed medical procedures in the healthcare sector. Most of the injections are unnecessary, ineffective or inappropriate and result in transmission of infectious disease. The aim of the study was to determine the prevalence and perception of the patients and health care providers of therapeutic injection. A descriptive study where data was collected from inpatient, outpatient and health care providers was conducted from February to March 2010 in Holeta town. A structured questionnaire for patients and health care providers was designed to assess the frequency and perception of patients of the therapeutic injection use. The data was edited and were entered in Epi Info Version 6.0 and analysis was conducted using statistical package for social sciences (SPSS) version 16.0. A total of 200 patients, 10 health care providers were participated. Eighty four (42%) of the patients preferred injection for their illness. Twenty three (31%) patients believed that injections were quicker acting than oral medications. Seventy five (37.5%) of the patients thought that injection was more effective than other dosage forms, while 83 (42.5%) said injection and other dosage forms were equally effective. Most (93) of the patients (46.5%) thought that unsafe injections could transmit a fatal disease, 62 (31%) did not know any risk associated with inappropriate injections, and 55(24.5%) thought that used needle could not transmit disease. The health care providers believed that diseases which were better treated with injection medication were pneumonia, tonsillitis, urinary tract infection, tuberculosis, acute febrile illness, meningitides and severe pain. The study revealed that the frequency of the therapeutic injection use in health facility was low. Most people, in general, do not have preference for injection. Most of the study participants were aware that HIV infections could be transmitted through contaminated sharp tools. However, health education to the community should be given to further increase the awareness of the people about HIV. The main reasons reported for prescribing injection were severity of illness and when the patient cannot take oral medications. Training of health workers on rational prescribing should be promoted.

Keywords: Ethiopia; health care providers; perception; therapeutic injection

Özet

Tedaviyle ilgili enjeksiyon uygulanması sağlık sektöründe en sık uygulanan tıbbi işlemler arasındadır. Enjeksiyonların çoğu gereksiz, etkisiz veya uygun değildir, ve infeksiyöz hastalığın bulaşmasına yol açar. Çalışmanın amacı, tedavi ile ilgili enjeksiyonda sağlık hizmeti verenler ve hastalarda algılama ve prevalansını saptamaktı. Sağlık hizmeti verenler, yatan ve ayakta tedavi edilen hastalardan toplanan verilerden oluşan bu tanımlayıcı çalışma, Holeta kasabasında Şubat-Mart 2010'da gerçekleştirildi. Sağlık hizmeti verenler ve hastalar için yapılandırılmış anket, tedaviyle ilgili enjeksiyon kullanımının hastalardaki algılaması ve sıklığını belirlemek için dizayn edildi. Veriler düzenlendi ve Epi Info sürüm 6.0'a girildi, ve sosyal bilimler için istatistik paketi (SPSS) sürüm 16.0 kullanılarak analizleri yapıldı. Toplam 200 hasta ve 10 sağlık hizmeti veren çalışmaya katıldı. Hastaların 84'ü (%42) hastalıkları için enjeksiyonu tercih etti. Yirmi üç hasta (%31) enjeksiyonların, oral yoldan tedaviye göre daha çabuk etki ettiğine inanmıştı. Hastaların 75'i (%37.5) enjeksiyonun diğer dozaj şekillerinden daha etkili olduğunu düşünürken, 83'ü (%42.5) enjeksiyon ve diğer dozaj şekillerinin eşit etkinlikte olduğunu söyledi. Hastaların çoğu (93'ü) (%46.5) güvenli olmayan enjeksiyonların ölümcül hastalığı bulaştırabileceğini düşünürken, 62'si (%31) uygun olmayan enjeksiyonlara herhangi bir riskin eşlik edebileceğini bilmiyordu ve 55'i (%24.5) kullanılmış iğne ucunun hastalığı bulaştıramayacağını düşünüyordu. Sağlık hizmeti verenler enjeksiyonla daha iyi tedavi edilen hastalıkların pnömoni, tonsillit, idrar yolu enfeksiyonu, tüberküloz, akut febril hastalıklar, menenjitler ve şiddetli ağrı olduğuna inanıyordu. Bu çalışma sağlıkta tedavi için enjeksiyon kullanımı sıklığının düşük olduğunu ortaya koydu. Birçok insan genelde enjeksiyonu tercih etmemektedir. Çalışmaya katılanların çoğu HIV infeksiyonlarının kontamine olmuş keskin aletler aracılığıyla bulaştırılabileceğinin farkındaydı. Fakat, HIV hakkında insanların farkındalığını daha da artırmak için topluma sağlık eğitimi verilmelidir. Enjeksiyon şeklinin reçetelendirilmesi için bildirilen başlıca nedenler hastalığın şiddeti ve hastanın oral yoldan ilaç alamadığı zaman olmasıydı. Sağlık çalışanlarının rasyonel reçetelendirme konusunda eğitimi teşvik edilmelidir.

Anahtar kelimeler: Etiyopya; sağlık hizmeti verenler; algılama; tedaviyle ilgili enjeksiyon

Introduction

Administration of therapeutic injections is among the most frequently performed medical procedure in the healthcare sector. It is estimated that annually 16 billion injections are administered in developing and transitional countries, of these 95% are used for curative purposes (1). The World Health Organization (WHO) defines a safe injection as one that does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for the community (2).

İletişim/Correspondence to: Nasir Tajure Wabe, Jimma University, P.O. Box 251 1480, Jimma, ETHIOPIA
Tel: +251 911 68 0576 *nasir.wabe@ju.edu.et*

Poor injection practices have been reported worldwide (3,4). Many injections are unnecessary and unsafe (5). Of particular concern is the reuse of injection equipment in the absence of sterilization. The combination of injection overuse and unsafe practices results in a major route of transmission for Hepatitis B virus and Hepatitis C virus. Other complications of unsafe injections include infection with HIV, abscesses, septicemia, malaria, and viral hemorrhagic fevers (1,5).

Most of the therapeutic injections are unnecessary, ineffective or inappropriate (6). Injection practices in third world countries are also often not safe. The advent

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of disposable syringes in mid 20th century was considered to overcome the problem of inadequate sterilization practices, especially in developing countries (7-11). The improper disposal can also lead to transmission of infections to the general population (7,12,13).

The reasons for unsafe injection practices in low income countries are complex and involve a combination of socio cultural, economic and structural factors. There is apperception that injections are superior (more efficacious and faster acting) to oral medication. In some places the rituals surrounding preparation and administration of injections, including the experience of gain, enhances belief in their power to real. Health workers are also influenced by socio cultural perceptions as well as having their own professional beliefs that potentially contributed to the over use of injections (14). In low income countries, allopathic, traditional and informal health care providers all prescribe injectable treatments and many subscribe to the idea that compliance is better with injections than with oral medication. Health workers also believe that patients want injection, and if injections are not provided during consultation, they may seek service elsewhere (14-19).
Although, extensive research has been conducted throughout the world, injection practices in Ethiopia are not yet explored sufficiently. To date however, there are few studies on the prevalence and perception of the patients and health workers on injection use in the country. The objective of this study was to determine the frequency, perception of the patients and health care providers of therapeutic injection use in Ethiopia. It has also great contribution in providing information on the extent of the use and popularity of injection use.

Participants and methods

The study was approved by the Ethics Committee of Jimma University. Then formal letter was written to Holeta Genet town administration to get permission for the data collection and permission was obtained accordingly. Interviewer explained the purpose of the study and assured confidentiality to each respondents and participation was totally voluntary.

The study was conducted in Holeta Genet Health Center which is found in Oromia Regional State in central Ethiopia from February to March 2010. It is found 40 km from capital Addis Ababa in the North West direction. The town is organized for administrative purpose into two Kebeles (smaller part of town encompassing around 5,000 houses). The total populations of these two kebeles are 10597 (6257 male and 4340 female).

A descriptive study was used to determine the frequency, perception of the patients and health care providers of therapeutic injection use. Data collection questionnaire was used to collect the information from inpatient, outpatients and health care providers. The study included all patients who get medication of any type (injection, oral, topical etc.) during the study period and health care providers working in Holeta Genet Health Center.

A structured questionnaire for patients and health care providers was designed to assess the frequency and perception of patients of the therapeutic injection use. The validity of the questionnaires was assessed through in-depth discussion with experienced professors working in College of Public Health and Medical Science of Jimma University. The questionnaire was pretested on 15 patients attending Jimma University Hospital and 5 health care providers working at the same hospital before actual survey and necessary correction was made. The questionnaire for patients included; socio demographic characteristics of the patient, patients attitude regarding use of injection, medication preference (injection, oral, topical etc.), reason for preference, feeling of the patients when not given injection medication for their illness, whether refused injection to date and reason for refusal, efficacy of injection compared to other medications, whether all illness needs injection and patients knowledge of risk of injection. The structured questionnaire for health care providers included information about situation of injection preference, type of illness that need therapeutic injections, diseases that are transmitted through unsafe injection use, care that need to be exercised during giving injection and dosage forms preference when treating patients.

The questionnaire was developed in English, then translated into local languages (Amharic and Afan Oromo) and back-translated into English to check for accuracy. Interviewers were fluent in both local languages and English. The data collection was supervised and coordinated by supervisors, who were university staffs at Jimma University. The questionnaires were checked by supervisors at the end of each day during the survey, for omission of incomplete answers and for coding the responses.

The data was edited and were entered in Epi Info Version 6.0 (WHO) and analysis was conducted using statistical package for Social Sciences (SPSS) version 16.0.

Results

A total of 200 (95%) patients and 10 (5%) health care providers was included in the study to assess the frequency and perception of the patients and health care providers of therapeutic injection use at Holeta Health Center. Among the total respondents, 104 (49.5%) were females and 106 (50.5%) were males. The mean age was 37.5 year (SD=13.4). The majority of the respondents were orthodox (68%) by religion. With regard to educational status only 5% of the participants were illiterate and the rest have some level of formal educational; grade 1-8 (23%), grade 9-12 (31%) and grade 12 complete and above (41%).

Patients' perspective

Of the 200 patients who got treatment during interview, 30 (15%) were given one or more injection, of which 10

(5%) were treated with injection only and 20 (10%) were treated with injection and oral medication. Oral medications were prescribed for 115 (57.5%) of patients. Topical medication were prescribed for 15 (7.5%) patients, inhalation for 7 (3%) and the reaming patient were treated with rectal or vaginal medications. Eighty four (42%) of the patients preferred injection medications for their illness, while 116 (58%) preferred oral medications. Rest of the patients did not have any preference to either form of medications. Among patient who preferred injection medications for their illness over other medications, 23 (31.1%) believed that injections were quicker acting (immediate relief from their illness) than oral medications and 18 (24.3%) felt the oral medication cause gastrointestinal irritation (Table 1).

When asked about their feeling when not given injection medication for their illness, 135 (67.5%) reported that they feel nothings, 47 (23.5%) said they would happy and 18 (9.0%) would be disappointed. One hundred fifty three (76.5%) had refused to be given injection. The most common reasons for refusal were fear of consequence of unsafe injection (51.0%) and pain during injection (49.0%). When asked about their opinion if the therapeutic effect of injection and other dosage forms were equal, 75 (37.5%) thought that injection was more effective, while 83 (42.5%) thought that injection and other dosage forms were therapeutically equally effective. But 42 (21.0%) did not know whether they are equally effective or not (Table 1).

Table 1. Reasons for preference of injections and attitudes towards the therapeutic effect of injection medication when compared to other dosage forms.

Characteristics	***Frequency (%)***
Reasons for the preference of injection medications (n=74)	
Fast onset of action (immediate relief)	23 (31.1)
Gastro intestinal irritation of oral medications	18 (24.3)
Difficulty of swallowing of oral medications	12 (16.2)
Forget to take oral medications timely	9 (12.1)
Dislike oral medications	6 (8.1)
Oral medications cause liver problems	3 (4.1)
Do not satisfy with oral medications	3 (4.1)
Attitudes towards the therapeutic effect of injections (n=200)	
Injection and other dosage form are equal	75 (37.5)
Injection was more effective	83 (42.5)
Do not know	42 (21.0)
Respondents' feeling when not given injection medication (n=200)	
Feel nothings	135 (67.5)
Happy	47 (23.5)
Disappointed	18 (9.0)

Note: One patient can give more than one reason for preference of injection medication.

Study participants mentioned that disease and symptoms which they thought were better treated with injection were cough/common cold 92 (27.4%), urinary tract infection 6 (1.8%), abdominal cramp 24 (7.1%), wounds 18 (5.4%), diarrhea 9 (2.6%) (Table 2). Most patients 93 (46.5%) thought that unsafe injections could transmit a fatal disease; 62 (31%) did not know any risk associated with inappropriate injections and 55 (24.5%) thought that used needle could not transmit disease. When asked about the disease that are transmitted due to used needle, 135 (61.9%) patients thought used needles could transmit HIV/AIDS, 36 (9.9%) tuberculosis, 27 (7.4%) sexually transmitted (STD), and 21 (5.7%) believe liver disease can be transmitted by unsafe needle (Table 3).

Health care providers' perspective

Seven nurses, two health officers and one physician were participated in the study. Six healthcare providers preferred injection medications. The main reasons reported for prescribing injection were severity of illness and when the patient cannot take oral medications. When asked about the diseases that are transmitted due to unsafe injection, all of the providers were aware that HIV/AIDS and viral hepatitis could be transmitted. The health care providers believed that diseases which were better treated with injection medications were pneumonia, tonsillitis, urinary tract infection, tuberculosis, acute febrile illness, meningitides and severe pain (Table 4). In addition, the health care providers were trained how to prepare safety box for the disposal of used needles and even they were using this material during the study.

Table 2. Opinion of study participants about the type of diseases that should be treated with injections.

Disease /Symptom	***Frequency (%)***
Cough/Cold	92 (27.4)
Abdominal Cramp	24 (7.1)
Acute febrile illness	3 (0.9)
Asthma	3(0.9)
Cancer	9 (2.6)
Diarrhea	9(2.6)
Goiter	3(0.9)
Intestinal parasites	6(1.8)
Liver disease	3(0.9)
Malaria	30 (8.9)
Peptic ulcer disease	3(0.9)
Psychotic	3(0.9)
Rheumatic fever	6(1.8)
Sexually transmitted disease	6(1.8)
Tetanus	3(0.9)
Tonsillitis	53 (15.5)
Toothache	6(1.8)
Tuberculosis	41 (12.2)
Typhoid	3(0.9)
Urinary tract infection	6 (1.8)
Wounds	18 (5.4)
Total	330 (100)

Note: one patient can mention more than one diseases.

Table 3. Patients' knowledge about the types of disease that are transmitted due to used needles.

Disease transmitted due to used needles (n=200)	***Frequency (%)***
HIV/ AIDS	135 (61.9)
Gonorrhea	6 (1.7)
Kidney Diseases	3 (0.8)
Liver Disease	21 (5.7)
Malaria	6 (1.7)
Sexually transmitted disease	27 (7.4)
Syphilis	18 (5.0)
Tetanus	6 (1.7)
Tonsillitis	9 (2.5)
Tuberculosis	36 (9.9)
Typhoid	6 (1.7)

Note: One patient can mention more than one diseases.

Table 4. Opinion of the health care providers about the type of diseases that should be treated with the injection.

Type of Disease	*Frequency (%)*
Pneumonia	13 (15.0)
Acute febrile illness	9 (10.4)
Asthma	4 (4.6)
Bronchitis	2 (2.3)
Chronic gastritis	4 (4.6)
Malaria	2 (2.3)
Meningitides	7 (8.1)
Rabies	4 (4.6)
Sever pain	5 (5.7)
Snakebite	2 (2.3)
Tonsillitis	11 (12.6)
Tuberculosis	9 (10.3)
Type I diabetic mellitus	4 (4.5)
Typhoid	2 (2.3)
Urinary tract injection	9 (10.4)
Total	87 (100)

Note: One health care provider can mention more than one disease.

Discussion

This study revealed that only few patients 30 (15%) who were ill and sought medical treatment received one or more therapeutic injections. Oral medications are highly prescribed than injection medications. The frequency of injection use in the study area is lower than earlier reports in other countries. Various levels of injection use have been reported world wide ranging from 1.7 in Brazil to 13 injections per person per year in Mongolia (14). In a study done on injection practice in Cambodia the overall injection practice rate was 5.9 injections per person per year. Accordingly, the therapeutic injection accounted for 74% of the total number of injections reported, followed by intravenous infusions (16%) and immunization (10%) and among individual who had any exposure to injections, nearly one half reported receiving more than 5 injections per person (19). A study conducted in two districts of Pakistan (9) documented that 68% of the patients received one or more injections. In India, 45% of the households reported having had at least one injection in 3 months recall period (6). A study of 114 patients in Meskan district in Ethiopia (9) also revealed that most of the household had received at least one injection. The result in the two governorates of Egypt (20) is also higher (77.2%). The reason for higher frequency of injection in those studies includes, providers' attitudes driving injection overuse (20). This might be due to a large number of injections of tetanus toxoid administered to all ages, irrespective of the type of injury and the date of past administration. The patients' considerations of injections as standard practice and unawareness of the risks associated with reuse of injection equipment was another reason for higher prevalence in those studies compared to our current study.

In this study, the preference of the patients for injection was (30.8%). Most of them prefer oral medications over injection. This is not in agreement with several other studies (3,20-22) which showed higher preference of injections. However, the result in India (6) is much lower than that of the study area (13.8%). In the current study, no reuse of needle or syringes neither observed nor reported by participants. This contradicts findings from several studies. The study in Pakistan (9) showed that 8.4% and 18% of participants who had been injected with a previously opened plastic syringe respectively. Because the overuse of injection practices in Pakistan has become a therapeutic norm in the practice of general practitioner (9). In Uganda, there is a trend for families to keep needles and syringes at home for use when a family member requires an injection. This practice is motivated by the belief that it is safer to share injecting equipment with family members and friends than it is to use the injecting equipment provided by public hospitals where strangers, who possibly have HIV infection, are treated. Knowing who has previously used your injecting equipment is perceived as a way of taking control (14,15,24). Various other studies around the world also showed unsafe injection practices. In Gujarat India, the proportion of population who received the last injection with disposable syringe needles was 44.6% (25), 42.9% in South India (26) and 49% in North India (6). In China, 97% usage of disposable syringes was reported (27).

In the present study, there was high level of awareness of infection risks associated with unsafe injection use, particularly HIV/AIDS case (62%). The proportion of the population aware of the potential risk of HIV infection through unsafe injections was 24% in Pakistan in 1998, 19% in India in 1999, 23 and 52% in Burkina Faso in 2001. The consequences of the HIV pandemic have been perceived more acutely in Africa than in Asia (1,15,23). A higher awareness regarding the risks of HIV infection associated with unsafe injections in sub-Saharan Africa (23) may partly explain the difference observed in the proportion of reuse. To the contrary, there is lack of awareness of the risk of HIV infection associated with unsafe injections in some studies (22,28).

According to the study participants' opinion the major disease that should be treated with injection were cough/cold and tonsillitis. But diarrhea and malaria were the major diseases that were reported by other study in Ethiopia (20). This difference could be explained partly by high prevalence of malaria in that study area which contributed for that perception.

Using a disposable syringe for every patient prevents the patient-to-patient transmission of hepatitis B and C (7). However, syringe disposal without effective waste disposal system opens a new portal of transmission of blood borne pathogen from patients to general community (7,29). Disposal of used injection equipment at open place in rural areas could increases the risk of transmission to children, who play with syringes and can get pricked. The situation is not very different in the city where most of the doctors dispose of syringes in the municipal waste bin (7). In this present study the practitioners were trained how to prepare safety box for the disposal of used needles and observed they were using this material. But the study done in Cambodia showed that 32% of the study participants regarded that the used injection equipment was left behind by the

injection providers (19). A study in India reported disposal of syringes in the drains or was thrown openly (28). Study in Tanzania reported disposal of syringes in rubbish pit and latrine (8).

Kermode (14) in his review mentioned that health workers believe that patients want injections as part of the consultation (which may or may not be true), so they provide one, even though it may not be the most appropriate treatment option. As Sciortino (30) also pointed out that a lack of communication between patients and health care providers may be unnecessarily contributing to the overuse of injections. Health workers give injections because they think that patients want them. Patients want injections because the health workers give them. The fact that health workers always give injections and patients, in their role as passive receivers, hardly ever refuse them nourishes their mutual expectations. Possible doubts by patients or health workers are not expressed in their daily communication. It is this vicious circle which keeps the practice going (14,30). However, in our study, the main reasons reported for prescribing injection were severity of illness and when the patient cannot take oral medications. When asked about the diseases that are transmitted due to unsafe injection, all providers were aware that HIV/AIDS and viral hepatitis could be transmitted.

In conclusion, this study revealed that the frequency of the therapeutic injection use in health facility was low. Most people, in general do not have preference for injection. The majority of study participant are aware that HIV infections could be transmitted through contaminated sharp tools. However, there is a lack of knowledge about the risk of transmission of HBV and HCV through similar practices. The main reasons reported for prescribing injection were severity of illness and when the patient cannot take oral medications. The knowledge and prescribing behavior of health workers should be explored as to identify rational prescribing practices. Targeted training of health workers on rational prescribing should be promoted. In addition, health education to the community should be given to further increase the awareness of the people about HIV.

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