

UDC 615.1:614.27

O. M. Ievtushenko, Osama Abuzaid Mohamed Nour Ahmed

National University of Pharmacy, Kharkiv

COMPARATIVE ANALYSIS OF THE PHARMACEUTICAL CARE AVAILABILITY IN SUDAN AND AFRICAN COUNTRIES (ON EXAMPLE OF ETHIOPIA AND UGANDA)

The article is devoted to the comparative analysis of the affordability of medicines in African countries. Special focus was on Sudan, Uganda and Ethiopia. The indicators of medicines affordability are quoted in the article with the consideration of their general therapeutic use. In this context, public and private sectors of the system of medicines provision were analyzed. The monitoring results allow to draw the attention of the pharmaceutical market and the public to the problems of pricing of medicines, and also confirm the need to change the existing system of pricing in the countries studied.

Key words: pharmacy, medicines, African countries, Sudan, physical availability, economic affordability, price.

PROBLEM DEFINITION

Availability, efficiency and security of medicines is a multi-faceted problem which affects the field of law, national health policies, social sphere. In Africa, the problem of availability to treatment of common diseases continues to be extremely serious. It is related with a low solvency of the population, the need to save public funds for the organization of drug supply.

ANALYSIS OF RECENT RESEARCHES AND PUBLICATIONS

Analysis of recent researches and publications shows that it has been insufficiently studied such aspects as comparison of the availability of medicines in the countries of Africa, especially the medicines to treat of common diseases. During the study process it has been taken into account the recommendations of the World Health Organization (WHO) and the International Program of Action in Health Care (Health Action International - HAI) «Prices measurement on the medicines, their availability, affordability and price components» and the data obtained from the researches on this methodology [1, 2]; information from regional and national sources [3, 4]; scientific publications on this subject [5, 6].

FORMULATION OF OBJECTIVES IN ARTICLE

The aim of work is to make a comparative analysis of the physical and economic availability to medicines in Africa, particularly in Sudan, Uganda and Ethiopia.

BASIC MATERIAL RESEARCH

According to the interpretation version of WHO, the concept of “availability to medicines” is regarded in the aspects of physical and economic availability. During the analyzing of the physical accessibility it has been determined the number of pharmacies, where the examined medicine is available, and during the analysis of economical availability - the amount of the daily wages, which are necessary to pay for to the most low paid public sector employees for the treatment. We investigated the generic medicines sold at the lowest price in pharmacies of Africa (Sudan, Ethiopia, Uganda) of state and the private sector. These countries were selected due to the similarity of systems of medical and pharmaceutical care [1, 2, 3, 4]. Fragment of work is represented in table 1. During the study it has been taken into account the list of drugs for the treatment of the most significant diseases at the level of the studied country, recommended by WHO. The list of drugs was adjusted with the priorities in the treatment of certain diseases, their prevalence on the territory of African continent

© Ievtushenko O. M., Osama Abuzaid Mohamed Nour Ahmed, 2015

and the comparability of products for their further analysis.

We have analyzed the most typical ratio indicators of physical and economic availability of generic medicines in the public and private sectors of Sudan, Ethiopia and Uganda. Indicators of physical accessibility of Glibenclamide 5 mg cap / tab (SSC) in Sudan are the highest among the all sectors of the analyzed countries and the values in the public sector are slightly higher than in the private sector.

In Ethiopia, the presence of this drug in private pharmacies is close to the values of Sudan, but in public pharmacies it is considerably lower. In Uganda, the indexes of this drug availability have the lower values, but this is partially compensated by the higher values in the missionary sector (charity sectors working in the country). Indicators of physical availability of Diclofenac 50 mg cap/tab (SSC) in the all analyzed countries in the public sector have the low values. This approves the need to take measures to provide with this drug in the state pharmacies, despite the fact that this provision has been partially compensated by a higher presence of drugs in the private sector. Indicators of physical availability of Ciprofloxacin 500 mg cap / tab are the highest among the analyzed drugs in Sudan, Ethiopia and Uganda, and are estimated as very good drugs, which attest the improvement in the level of pharmaceutical care in countries that until recently come off in this regard. But it should be noted the lack of drugs availability in Uganda, the presence of the most common drugs in pharmacies of public and private sectors are in the range of 70-80 %, which is not enough, especially the vital drugs.

The level of economical availability doesn't reached the required level. For the treatment with Ciprofloxacin 500 mg cap / tab (SSC) in the Sudan, the most lowest paid worker of the public sector must pay more than one-day earnings, which indicates on the inaccessibility of the drug. The situation with the economical availability of this drug is little better in Ethiopia, but the rates are close to the same in Sudan. The situation with the economical availability of this drug is little better in Uganda: to pay the course of treatment to the patient with low wages he needs to pay one-day earnings, and the analyzed indicator of the public sector is significantly better.

Comparative analysis of economical availability of Glibenclamide 5 mg cap/tab (SSC) in Sudan, Ethiopia and Uganda shows that the drug is most available in Ethiopia. In the public sector the indexes are better in Sudan and Ethiopia. Glibenclamide is less available in Uganda, to the most low paid employee of the budget sphere to pay the course of

treatment it is necessary to pay more than one-day earnings, which demonstrate the need to increase the economical availability in Uganda of this drug.

In African countries, in most cases during the treatment of common diseases the availability of the treatment is provided by the SSC, the main reason for this situation is the low population solvency, but there is also the small number of OLS in the total amount of the used drugs. Sudan belongs to the group of African countries, in which, despite the presence of the above mentioned general tendency, the original drugs are most common in comparison with the other countries of the continent. Of course, they are less available, but it should be noted that the indicators of economic availability to OLS in the private sector are quite close to the same indexes of the public sector. The analysis allows to draw the attention of the pharmaceutical market participants and community to the problems of price formation on the African continent. Monitoring results confirm the need to change the existing system of pricing for the vital drugs.

CONCLUSIONS

1. It has been made the monitoring of physical and economical availability of vital drugs in the countries of Africa. It has been investigated the generic medicines sold at the lowest price in pharmacies of Africa (Sudan, Ethiopia, Uganda) of state and the private sector. The analysis results demonstrate a positive tendency in the pharmaceutical security system of these countries, however, the necessary levels of indexes have not been achieved, and accordingly, the question about the limited opportunities in the treatment of outpatients steals actual for today.

2. The results of monitoring allows to draw the attention of the pharmaceutical market participants and community to the problems of price formation of medicines, and also confirm the need to change the existing system of pricing in the studied countries.

REFERENCES

1. Database of medicine prices, availability, affordability and price components. [Electronic resource]. – Режим доступа: <http://www.hai-web.org/MedPriceDatabase/>
2. Measuring medicine prices, availability, affordability and price components – 2ND EDITION. Authors: World Health Organization and Health Action International. – [Electronic resource]. – Mode of access http://www.who.int/medicines/areas/access/OMS_Medicine_prices.pdf
3. Medicine Prices, Availability, Affordability and Price Components in Sudan. Survey date: March

Table

COMPARATIVE DATA ON THE ECONOMIC AND PHYSICAL AVAILABILITY OF ESSENTIAL DRUGS
(SSC) IN AFRICA (SUDAN, ETHIOPIA, UGANDA) (FRAGMENT OF RESEARCH)

Internatio- nal drug name	The dosage formulation	General thera- peutically use of drug	Median price of medicine unit, dol- lars USA		Daily dose	The duration of treat- ment, days	Number of drug union during the treatment	Median price of treatment course, dollars USA		Economic accessibility (number of wages per day to pay for the treat- ment)		Physical availability of drugs (penetra- tion),%	
			State sector	Private sector				State sector	Private sector	State sec- tor	Private sector	State sector	Private sector
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Economic and physical availability of general drugs (SSC) in the public and private sectors of Sudan (at the rate of 1 dollar USA = 6.5 Sudanese pounds, and the daily wage of the lowest paid unskilled government employee 1,846 USD ~ 12 Sudanese pounds)													
Diclofenac	50 mg cap/tab	Arthritis	0,1641	0,1519	50*2 = 100 mg	30	60	0,1641* *60 = 9,849	0,1519* *60 = 9,115	9,849/ /1,846 = 5,3	9,115/ /1,846 = 4,9	45,7	94,4
Paracetamol	120 mg/5ml suspension	Pain, inflammation	0,0102	0,0128	(120/5)*15 = 1800 mg/75 ml	3	45	0,0102* *45 = 0,461	0,0128* *45 = 0,566	0,461/ /1,846 = 0,2	0,566/ /1,846 = 0,3	85,7	83,3
Atenolol	50 mg cap/tab	hypertension	0,0410	0,0308	50*1 = 50 mg	30	30	0,0410* *30 = 1,230	0,0308* *30 = 0,924	1,230/ /1,846 = 0,7	0,924/ /1,846 = 0,5	88,6	94,4
Glibenclami-de	5 mg cap/tab	Diabetes	0,0153	0,0153	5*2 = 10 mg	30	60	0,0153* *60 = 0,918	0,0153* *60 = 0,918	0,918/ /1,846 = 0,5	0,918/ /1,846 = 0,5	97,1	94,4
Artemether+ Lumefan-trine	20+120 mg cap/tab	Malaria	0,0866	0,2558	(20+120)* *3 = 60+ +360 mg	1	3	0,0866*3 = 0,260	0,2558*3 = 0,767	0,260/ /1,846 = 0,1	0,767/ /1,846 = 0,4	20,0	16,7
Ceftriaxone	1 g/vial inj-on	Resp.inf. among adults.	8,5353	2,3046	1*1 = 1 g	3	3	8,5353*3 = 25,606	2,3046* *3 = 6,914	25,606/ /1,846 = 13,9	6,914/ /1,846 = 3,8	100,0	97,2
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Ciprofloxacin	500 mg cap/ tab	Resp.inf. among adults.	0,15	0,15	500*2 = 1000 mg	7	14	0,15*14 = 2,1	0,15*14 = 2,1	2,1/1,846 = 1,2	2,1/1,846 = 1,2	100,0	100,0
Amoxicillin	250 mg/5ml susp.	Resp.inf. among kids	0,0163	0,0163	(250/5)*14,3 = 3575mg /71.5 ml	7	100	0,0163* *100 = 1,630	0,0163* *100 = 1,630	1,630/ /1,846 = 0,9	1,630/ /1,846 = 0,9	85,7	91,7

The rest of the table

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Omepra-zole	20 mg cap/tab	Stomach ulcer	0.1647	0.1537	20*1 = 20 mg	30	30	0.1647* *30 = 4,941	0.1537* *30 = 4,611	4,941/ /1,846 = 2,7	4,611/ /1,846 = 2,5	100,0	100,0
Economic and physical availability to the main drugs (SSC) in the public and private sectors of Ethiopia (at the rate of 1 US dollar = 18.72 Ethiopian Birr and the daily wage of the lowest paid unskilled government employee 0.7479 USD ~ 14 Ethiopian birr)													
Diclofenac	50 mg cap/tab	Arthritis	0.0074	0.0106	50*2 = 100 mg	30	60	0.0074* *60 = 0,448	0.0106* *60 = 0,639	0,448/ /0,7479 = 0,6	0,639/ /0,7479 = 0,9	55,9	100,0
Paracetamol	120 mg/5ml susp.	Pain, inflammation	0.0071	0.0088	(120/5)*15 = 1800 mg/75 ml	3	45	0.0071*45 = 0,319	0.0088*45 = 0,396	0,319/ /0,7479 = 0,4	0,396/ /0,7479 = 0,5	70,6	90,0
Glibenclami-de	5 mg cap/tab	Diabetes	0.0053	0.008	5*2 = 10 mg	30	60	0.0053* *60 = 0,320	0.008* *60 = 0,481	0,320/ /0,7479 = 0,4	0,481/ /0,7479 = 0,6	64,7	80,0
Amoxicillin	500 mg cap/tab	Resp.inf. among adults.	0.045	0.053	500*3 = 1500 mg	7	21	0.045*21 = 0,945	0.053*21 = 1,124	0,939/ /0,7479 = 1,3	1,124/ /0,7479 = 1,5	82,4	96,7
Ciprofloxacin	500 mg cap/tab	Resp.inf. among adults.	0.0457	0.0532	500*2 = 1000 mg	7	14	0.0457* *14 = 0,640	0.0532* *14 = 0,744	0,640/ /0,7479 = 0,9	0,744/ /0,7479 = 1,0	97,1	100,0
Co-trimoxazole	400+80 mg cap/tab	Resp.inf. among adults..	0.0151	0.0160	(400+80)* *2 = (800+160) mg	7	14	0.0151* *14 = 0,212	0.0160* *14 = 0,224	0,212/ /0,7479 = 0,3	0,224/ /0,7479 = 0,3	82,4	90,0
Economic and physical availability to the main drugs (SSC) in the private and missionary sectors of Uganda (at the rate of 1 US dollar = 2560 Ugandan shillings and daily wage of the lowest paid unskilled government employee of US \$ 2,031 ~ 5,200 Uganda shillings)													
Diclofenac	50 mg cap/tab	Arthritis	0.0196	0.0313	50*2 = 100 mg	30	60	0.0196*60 = 1,174	0.0313*60 = 1,876	1,174/ /2,031 = 0,6	1,876/ /2,031 = 0,9	96,4	82,9
Paracetamol	120 mg/5ml susp.	Pain, inflammation	0.0116	0.0116	(120/5)*15 = 1800 mg/15 ml	3	45	0.0116* *45 = 0,522	0.0116* *45 = 0,522	0,522/ /2,031 = 0,26	0,522/ /2,031 = 0,26	70,6	90,0
Atenolol	50 mg cap/tab	hypertension	0.0200	0.0400	50*1 = 50 mg	30	30	0.0200* *30 = 0,6	0.0400* *30 = 1,2	0,6/ /2,031 = 0,3	1,2/ /2,031 = 0,6	88,6	94,4
Glibenclamide	5 mg cap/tab	Diabetes	0.0390	0.0390	5*2 = 10 mg	30	60	0.0390* *60 = 2,343	0.0390* *60 = 2,343	2,343/ /2,031 = 1,2	2,343/ /2,031 = 1,2	50,0	62,9

The rest of the table

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Artemether + Lumefan - trine	20+120 mg cap/tab	Malaria	0,0895	0,0488	(20+120)*6 = (120+720) mg	4	24	0,0895* 24 = 2,148	0,0488* 24 = 1,172	2,148/ /2,031 = 1,1	1,172/ /2,031 = 0,6	78,6	88,6
Ceftriaxone	1 g/vial inj-on	Resp.inf. among adults	0,9780	1,2670	1*1 = 1 g	1	1	0,9780* *1 = = 0,978	1,2670* *1 = = 1,167	0,978/ /2,031 = 0,5	1,167/ /2,031 = 0,6	64,3	82,9
Ciprofloxacin	500 mg cap/tab	Resp.inf. among adults	0,0782	0,0975	500*2 = 1000 mg	7	14	0,0782* *14 = = 1,095	0,0975* *14 = = 1,365	1,095/ /2,031 = 0,5	1,365/ /2,031 = 0,7	78,6	94,3
Amoxicillin	250 mg cap/tab	Resp.inf. among adults	0,0390	0,0390	250*3 = 750 mg	7	21	0,0390* *21 = = 0,818	0,0390* *21 = = 0,818	0,818/ /2,031 = 0,4	0,818/ /2,031 = 0,4	78,6	91,4
Omeprazole	20 mg cap/tab	Stomach ulcer	0,0782	0,0977	20*1 = 20 mg	30	30	0,0782* *30 = = 2,345	0,0977* *30 = = 2,932	2,345/ /2,031 = 1,2	2,932/ /2,031 = 1,4	85,7	82,9
Co-trimoxazole	40+200 mg/5ml susp.	Resp.inf. among kids	0,0117	0,0117	400+ 2000mg/50 ml	7	70	0,0117*70 = 0,820	0,0117*70 = 0,820	0,820/ /2,031 = 0,4	0,820/ /2,031 = 0,4	67,9	57,1

- 2012, Report date: April 2014. – [Electronic resource]. – Mode of access: http://www.haiweb.org/medicineprices/surveys/201203SD/sdocs/Sudan_report_2012_FINAL.pdf
4. Medicine Prices, Availability and Affordability in Sudan. Report of a survey conducted in February – March 2013, [Electronic resource]. – Mode of access: http://www.haiweb.org/medicineprices/surveys/201302SD/sdocs/Sudan_survey_report_2013.pdf
5. Salah Ibrahim Kheder. Evaluating medicines prices, availability, affordability and price components in Sudan / Salah Ibrahim Kheder, Hassan Mohamed Ali // Sudan Medical Monitor. – 2014. – Vol. 9, Issue 1. – P. 19-30.
6. The study of the availability of essential medicines in Ukraine: results of the common project of WHO, NAI and Ministry of Health of Ukraine / T. N. Dumenko, V. D. Pariy, L. V. Yakovleva, A. B. Zimenkovsky // Pharmacoeconomics in Ukraine: state and prospects of development: materials VI of scientific conference (Kharkiv, November 22, 2013) / ed. : V. P. Tchernykh and others. – Kharkov : edition of KPhU, 2013, p. 180-181.

УДК 615.1:614.27

О. М. Евтушенко, Осама Абузаїд Нур Ахмед

ПОРІВНЯЛЬНИЙ АНАЛІЗ ФАРМАЦЕВТИЧНОЇ ДОПОМОГИ В СУДАНІ ТА КРАЇНАХ АФРИКИ (НА ПРИКЛАДІ ЕФІОПІЇ Й УГАНДИ)

Статтю присвячено порівняльному аналізу цінової доступності лікарських засобів в африканських країнах. Особливий акцент було зроблено на Судан, Уганду та Ефіопію. Показники доступності лікарських засобів вказані у статті з урахуванням їх загального терапевтичного використання. У цьому контексті громадського та приватного секторів системи лікарського забезпечення було проаналізовано результати моніторингу. Вони дозволяють привернути увагу фармацевтичного ринку та громадськості до проблем ціноутворення на лікарські препарати, а також підтвердити необхідність зміни існуючої системи ціноутворення в досліджуваних країнах.

Ключові слова: аптеки, ліки, країн Африки, Судан, фізична доступність, економічна доступність, ціна.

УДК 615.1:614.27

Е. М. Евтушенко, Осама Абузаїд Мохамед Нур Ахмед

СРАВНИТЕЛЬНЫЙ АНАЛИЗ ФАРМАЦЕВТИЧЕСКОЙ ПОМОЩИ В СУДАНЕ И СТРАНАХ АФРИКИ (НА ПРИМЕРЕ ЭФИОПИИ И УГАНДЫ)

Статья посвящена сравнительному анализу ценовой доступности лекарственных средств в африканских странах. Особый акцент был сделан на Судан, Уганду и Эфиопию. Показатели доступности лекарственных средств указаны в статье с учетом их общего терапевтического использования. В этом контексте общественного и частного секторов системы лекарственного обеспечения были проанализированы результаты мониторинга. Они позволяют привлечь внимание фармацевтического рынка и общественности к проблемам ценообразования на лекарственные препараты, а также подтверждают необходимость изменения существующей системы ценообразования в исследуемых странах.

Ключевые слова: аптеки, лекарства, страны Африки, Судан, физическая доступность, экономическая доступность, цена.

Адреса для листування:

61168, Kharkov, 4 st. Bluchera.

Pharmaceutical marketing and management

department of NPhU,

Tel. (0572) 67-91-72,

E-mail: evtyshenkolena@rambler.ru.

Надійшла до редакції:

19.11.2015 р.