

A SURVEY TO EVALUATE THE OPINIONS OF TURKISH PHYSICIANS' ON BIOEQUIVALENCE

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Abstract

Two medicinal products are bioequivalent if they are pharmaceutically equivalent or pharmaceutical alternatives and if their bioavailability after administration in the same molar dose is similar to such degree that their effects, with respect to both efficacy and safety, will be essentially the same.

The generic drug that contains the same active substance and same pharmacological activity with the original drug and approved for 'bioequivalence', has to possess the same level of benefit and risks of original one. These drugs should be produced in the factories that are audited with the GMP rules.

In this study, the opinions of physicians, in Çorum, Türkiye, about the generic and original drugs will be reflected. For this reason, a survey of 15 questions has been practiced with 127 expert physicians and 209 practitioner (trainee) physicians.

The findings of the study presented that most of the physicians do not believe in the effectiveness of generic (substitute) drugs. Also, the majority of them declared that they would not use generic drugs for themselves or their relatives.

Key words: Bioequivalence , Bioequivalence In Turkey, Turkish Physicians

Türk Hekimlerinin Biyoeşdeğerlik Konusundaki Görüşlerini Değerlendirmek Üzere Bir Anket Çalışması

Farmasötik eşdeğer veya farmasötik alternatif olan iki ilaç, eşit dozda alındığında hem etkililik hem de güvenlik bakımından etkileri gerçekten aynı olacak ölçüde biyoyararlanımları benzer ise biyoeşdeğerdirler.

Biyoeşdeğerliği kanıtlanmış orijinal ilaçla aynı etken maddeyi içeren ve aynı farmakolojik etkiye sahip jenerik bir ilacın yarar ve riskleri orijinal ilaç ile aynı seviyede olmalıdır. Söz konusu jenerik ilaçların, GMP kurallarına uygun olarak denetlenen tesislerde üretilmesi gerekmektedir.

Bu çalışmada, Türkiye de Çorum ilindeki hekimlerin orijinal ve jenerik ilaçlarla ilgili görüşlerine yer verilecektir. Bu amaçla, Çorum ilinde bulunan, 127 uzman hekim ve 209 pratisyen hekime 15 soruluk anket formu uygulanmıştır.

Çalışmanın sonuçlarına göre hekimler genel olarak jenerik (muadil) ilaçların etkinliğine inanmamaktadırlar. Yine büyük çoğunluğu jenerik ilaçları kendilerinde veya akrabalarında kullanmayacaklarını belirtmiştir.

Anahtar Sözcükler: Biyoeşdeğerlik, Türkiye 'de Biyoeşdeğerlik, Türk Hekimleri

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INTRODUCTION

At the present time, drug industry has become multi-national. Although the worldwide trade of drug was not very high-scaled in the beginning, it has been developed very rapidly since the 60's. Both the sub-structure investments which are made by many drug companies, and advances in technology resulted in discovery of new drug molecules in last two decades.

Today, the world drug industry became powerful strategically by paying sufficient attention to the sub-structure investments and by using the technological developments.

However, the world drug industry have had to unite their power due to some problems including the increasing costs of research & development, the sub-structure investments and the global economic restriction in the last few years. Consequently, the large companies needed to engage with other companies or to purchase them in order to be more powerful. These engagements between the companies have created a big monopolist group in this field.

There are regulations with respect to data protection in order to protect the innovator companies investing in research and development. According to these regulations, any drug company does not have permission to produce molecules newly developed by an innovator firm through a specific period of time. At the end of this period, in view of the monopolism and avoiding drug prices, other firms are allowed to produce these new molecules as a generic drug. Because drug is an important product for human health, a generic firm should produce the drug with a quality as well as the innovator one. Therefore, developed countries have started to look for some standards of generic molecules. These standardization is now called bioequivalence. In recent years, in Turkey, some regulations have been done in respect of bioequivalence (1)

The bioequivalence studies are basically a comparative bioavailability studies designed to establish equivalence between test (generic) and reference (innovator) products. Pharmaceutical equivalence is the pre-condition of bioequivalence. Medicinal products are described as pharmaceutically equivalents if they contain the same amount of the same active substance(s) in the same dosage forms that meet the same or comparable standards (e.g. tablet or capsule), (2).

In the European Agency for the Evaluation of Medicinal Product (EMA) Guidelines, two medicinal products are defined as bioequivalent if they are pharmaceutically equivalent or pharmaceutical alternatives, and their bioavailabilities after administration in the same molar dose are similar to such degree that their effects, with respect to both efficacy and safety will be essentially the same (2). In other words, there should be no difference between the original and generic drug in terms of therapeutic effects (3).

The importance of bioequivalence in a clinical point of view is that a generic drug product which is approved as bioequivalent is an alternative of the innovator product in treatment. On the other hand, generic drugs have the advantage of not repeating the clinical studies which have been done for the original drugs. This makes the generic drugs less expensive (4). Given high cost of drugs paid by the governments to support people who are under the health security system, using the less expensive generic drugs instead of the originals offers economic benefits to the governments .

In this study, we aimed to know the opinions of the Turkish physicians about the regulations for bioequivalence, and the molecules that have been claimed to be bioequivalent.

EXPERIMENTAL

A questionnaire form consisting of fifteen-questions was practised with 127 expert and 209 practitioner physicians in Çorum. In this study, questionnaires were answered either by using the method of face to face interview or by mail correspondences.

Data collection process was started in October 2004 and finished by the end of December 2004.

Questionnaire forms have been checked by a pre-study before starting the main practice. Questionnaire questions have been put in order again by making necessary corrections. It has been determined whether the questionnaires were filled correctly as asked by the pre-check.

The number of the evaluated questionnaire is 115. This result forms the 34.2 % of the whole phase. As this proportion is over 30 %, the number of the questionnaire evaluated is thought to be statistically enough (5).

After forming the code keys of the information in questionnaires, their statistical evaluations, and the final comments have been done by the help of computed SPSS (7.5) software programme.

RESULTS

The results of this study on bio equivalency in Turkey and the opinions of the physicians are shown in the following figures:

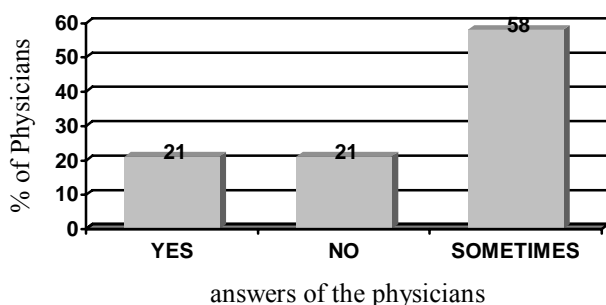


Figure 1 : Distribution of the opinions of the physicians on the effectiveness of generic drugs

21 % of the physicians participated in the survey state that the bioequivalent drugs are effective, 21 % of them state that the bio-equivalent drugs are ineffective and 58 % of them state that the bio-equivalent drugs are sometimes effective (Figure 1).

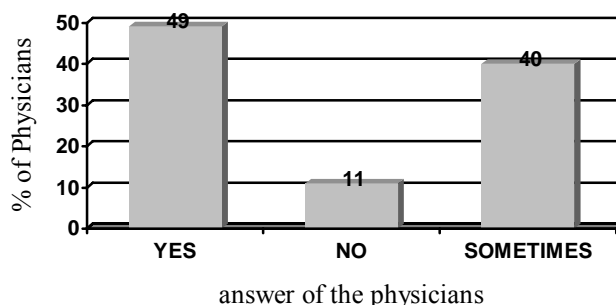


Figure 2 : Prescriptions of the generic drugs by the physicians participated in the questionnaire

49 % of the physicians participated in the survey state that they prescribe generic) drug, 11% of them state that they don't prescribe and 40 % state that they prescribe sometimes (Figure 2).

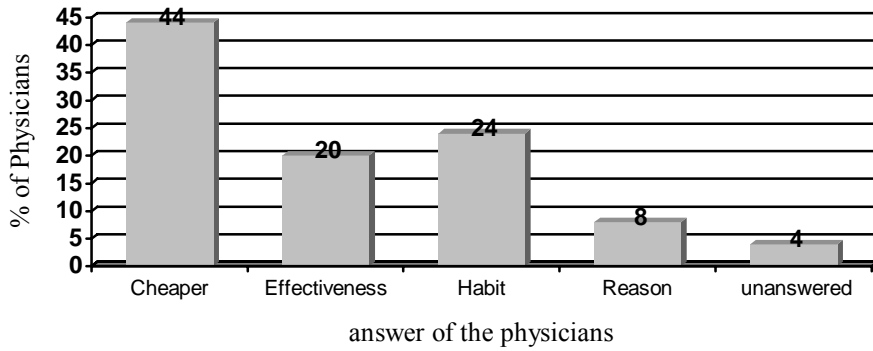


Figure 3 : Reasons to prescribe generic drugs by physicians participated in the questionnaire

44 % of the physicians participated in the survey state that they prescribe the generic drug because they are less expensive, 20 % of them prescribe because they trust in the effectiveness of the generic drug, 24 % state that they used to prescribe and, 8 % state that they prescribe because of other reasons. Four percent didn't give any answers (Figure 3).

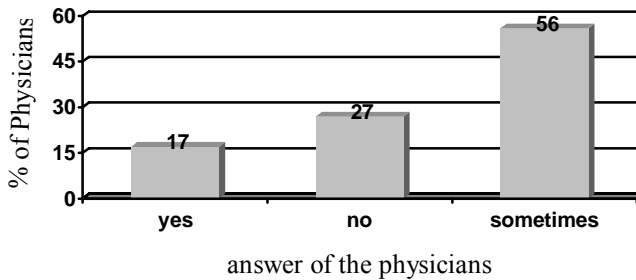


Figure 4 : The physicians' opinions about the bioequivalence of the generic drug

17 % of the physicians participated in the survey state that the generic drug are bioequivalent, 27 % state not bioequivalent and 56 % state sometimes bioequivalent (Figure 4).

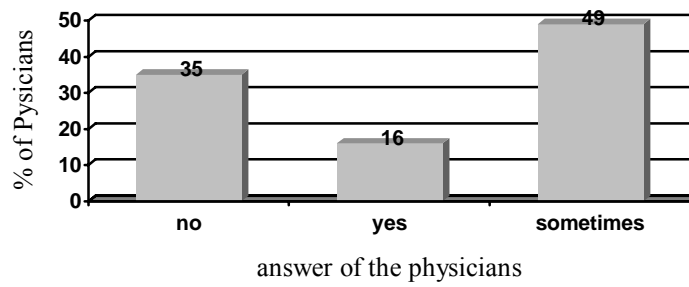


Figure 5 : Occasions of that the physicians didn't see the clinical results in their patients who use generic drug

35 % of the physicians participated in the questionnaire state that they didn't see the results in their patients who use generic drug, 16 % of the physicians state that they had results and 49 % of the physicians state that they sometimes see the results (Figure 5).

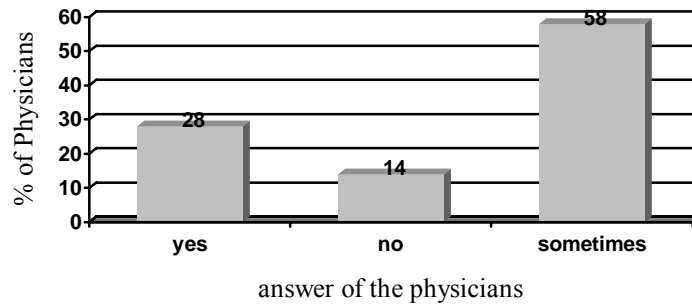


Figure 6 : Occasions of the physicians if whether they would encounter any problems or not with their patients who use generic drug

28 % of the physicians participated in the questionnaire said that they encounter problems with their patients who use generic drug, 14 % of the physicians said that they don't and 58 % of the physicians said that they sometimes encounter problems with their patients (Figure 6).

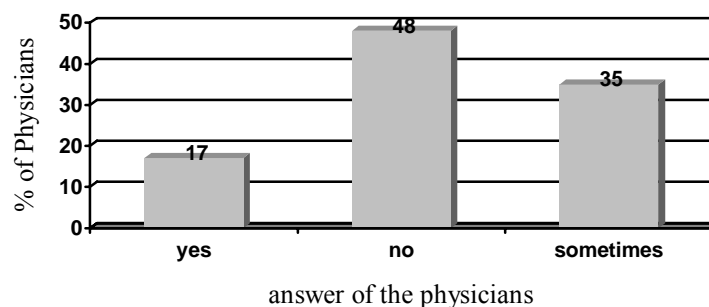


Figure 7 : Distribution of the physicians who use the generic drugs for their own or their relatives

17 % of the physicians participated in the questionnaire said that they use the generic drug for themselves or their relatives, 48 % of the physicians state that they don't, 35 % of the physicians said that they use sometimes (Figure 7).

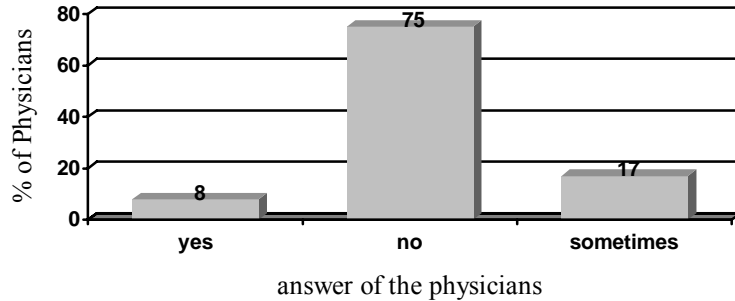


Figure 8 : The physicians' opinions on the bio equivalency studies in Turkey

8 % of the physicians participated in the questionnaire said that they trust in the bioequivalency studies in Turkey, 75 % of the physicians state that they don't, 17 % of the physicians said that they trust sometimes (Figure 8).

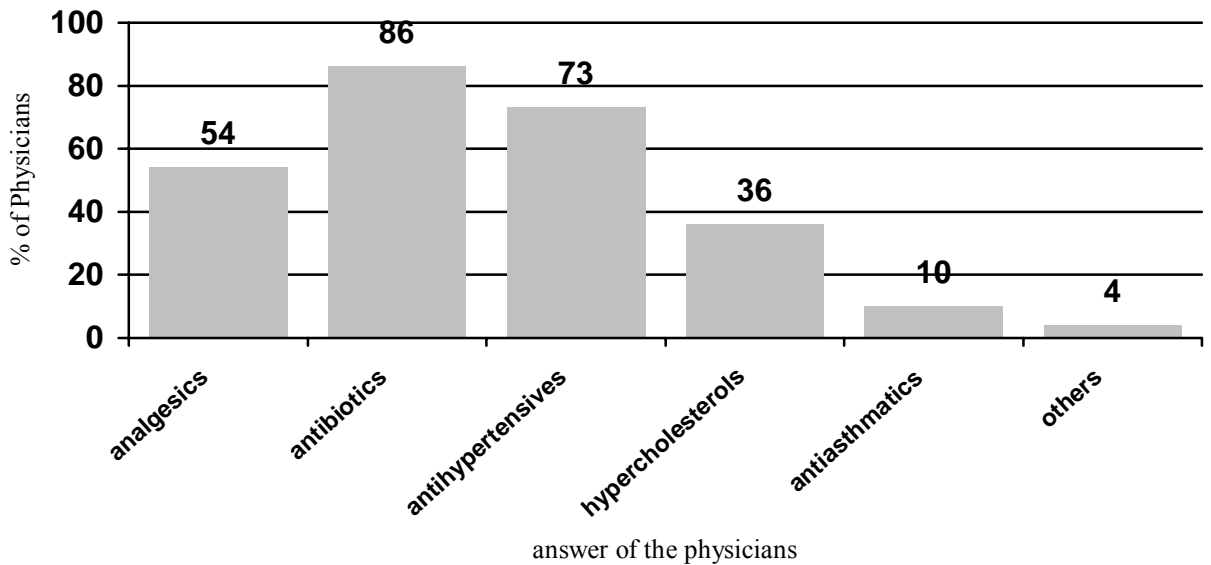


Figure 9 : Occasions of that the physicians encounter problems with pharmacological groups of the generic drug the most.

54 % of the physicians participated in the survey state that they encounter problems with analgesics, 86 % of them encounter with antibiotics, 73 % encounter problems with antihypertensives, 29 % of them with anti-diabetics, 36% of them with anticholesterols, 10 % with anti-asthmatics and 4 % with other group of generic drug (Figure 9).

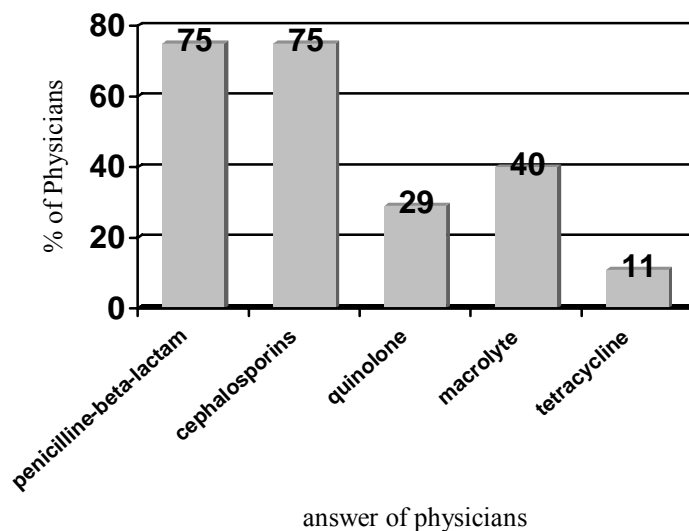


Figure 10 : Occasions of that the physicians encounter problems with the group of the generic antibiotics the most

75% of the physicians participated in the questionnaire said that they encounter problems the most in the equivalents of penicilline-beta-lactam, 75% of the physicians said that they encounter the most problems in the equivalents of cephalosporins, 29% of them in quinolone, 40% of them in macrolite, 11% of them encounter the problem most in tetracycline (Figure 10).

DISCUSSION AND CONCLUSION

30 % of physicians participated in the survey were 25-30 years old, 35 % of them were 31-35 years old, 23 % of them were 36-40 years old, and 12 % of them were 40 years old or above. 70 % of the physicians participated in the survey are male and remaining 30 % were female. 82 % of the physicians participated in the survey were practitioners and 18 % of them were experts.

One of the most conspicuous finding of this study was the fact that, 79 % of the physicians participated in the survey were skeptical about the effectiveness of the generic drug.

However, the avoidance of 51 % of the physicians to prescribe generic drugs showed the perceived reliability of generic drugs in our country.

Only 20 % of the physicians believe in the effectiveness of the generic drugs which is an other conspicuous finding of the survey causing this group of the drugs to be rated highly ineffective. Economical conditions in Turkey force our physicians to prescribe generic drugs even though they don't trust them. On the other hand, although it seems to reduce the treatment costs, it is not a pharmaco-economically rational approach because it may cause the lack of workforce, recovery of illnesses and may cause new costs and require newer or additional examinations. Furthermore, preference is another conspicuous reason for our physicians to

prescribe generic drugs. The fact that the generic drugs are highly rated ineffective by the physicians exposes the necessity to change their preference on this issue.

The expression of suspicious by most of the physicians participated in the survey about the bioequivalence of the generic drugs, demonstrates the importance of bioequivalence in Turkey.

Physicians stating that they mostly can't see the recovery in the patients who use the generic drugs are another proof that there is a problem with this group of drugs in Turkey.

Therefore, the physicians stating that they encounter problems (not curing, lack of confidence, etc.) with their patients who use these generic drugs expose the dimension of the problem. In recent years, this is one of the striking reasons of increasing the market of imported drugs (original molecules). Because, naturally the physicians don't want to encounter problems with their patients as they can't treat them.

According to the results of the questionnaire, it seems that physicians are uncertain about whether the generic drugs are as effective as their originals. On the other hand, most of the physicians do not trust the bioequivalence studies performed in Turkey. In accordance with these results, the physicians do not prefer to use generic drugs for themselves or their relatives.

Physicians highly encounter problems with the generic drugs that are known statistically mostly used in Turkey such as analgesics, antibiotics and antihypertensives which give information about the quality of treatment, its cost and how scientific the studies in Turkey are.

It is easy to understand by looking at these results why antibiotics are used the most in our country (7). Evaluating these two data proves the ineffectiveness of the generic drugs of the antibiotics that has been thought ineffective by the physicians.

If we want to enumerate the results obtained by this study;

- ◆ Generally the physicians don't believe in the effectiveness of the generic drugs.
- ◆ Even though the physicians don't trust the effectiveness of the generic drugs, they prescribe them. It is a striking fact that the reasons for prescribing generic drugs are their low costs and addiction.
- ◆ Most of the physicians don't believe in the drugs claimed to be bioequivalent are really bioequivalent.
- ◆ There are cases where physicians could not see the results in their patient who uses bioequivalent drug.
- ◆ Most of the physicians stated that they would not use the generic drugs for themselves or for their relatives.
- ◆ Physicians stated that they mostly encountered problems with the generic groups of the analgesics, antibiotics and antihypertensive.
- ◆ Physicians encounter serious problems with the generic drugs of antibiotic groups that are mostly used statistically.

As a result, the data of this study reflects the lack of the controls and the arrangements about the bioequivalence have in Turkey. Drugs whose origins are unknown or their qualitative analyses have not been made according to the written regulations have been offered to the usage of our people.

Formation of an independent committee that is fully authorized on every subject about drugs in Turkey might be a solution to address the mentioned deficiencies. However, it is another important issue to do well upon charging the right persons in that committee.

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