TRENDS IN ANTIDIABETIC DRUGS CONSUMPTION IN BULGARIA


SUMMARY

This study is intended to evaluate the trends of antidiabetic drugs utilisation in Bulgaria for assessing the cost of the therapy. The comparative analysis between morbidity data and drug consumption data has been developed and the cost-minimisation analysis for the economic assessment has been used. The results show that for the last four years there are increasing data for national and regional antidiabetic drugs consumption, especially for human insulin and for North regions. They correspond with the increasing morbidity data from diabetes in the country. The most expensive therapy has been found for the insulin dependent patients.

KEY WORDS

drug utilisation, diabet morbidity, pharmacoeconomics

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INTRODUCTION

Researching drug consumption is a key component of many efforts to evaluate the needs of specific pharmacological groups, for treatment practice. The antidiabetic drug utilisation is an indicator for the changes in the therapeutic practice because of its close dependence on the morbidity.

The necessity of a strict evaluation of the drugs needed in the therapeutic practice, specially those for the socially important diseases, such as diabetes mellitus has its significant place.

The main AIM of this study is to evaluate the contemporary trends in antidiabetic drug utilisation in Bulgaria.

With the view to achieve this aim we have analysed morbidity data in the country, consumption data for antidiabetic medicines and have made an economic assessment of the social expenses for the treatment of diabetic patients.

METHODOLOGY

We have based our research on two methodological approaches: time series analysis, for evidence in the country and cost minimisation analysis for expenses of diabetic patients.

RESULT

The first step in our study of collected data on children is to establish a therapeutic practice (1, 2, 3). Child's morbidity varies between children. They are only insulin-dependent.

Adult morbidity data show an increasing tendency, which the 10-year-olds and Fig.1. The difference between 2.64% to 0.99%, but as a whole morbidity rate.
- time series analysis - for evaluation of the morbidity and consumption data in the country
- cost minimisation analysis - for economics assessment of the social expenses for diabetic patient treatment.

RESULTS and DISCUSSION

The first step in our study was the analysis of morbidity data. We collected data on children and adult morbidity and separately on therapeutic practice (1, 2, 3).

Child’s morbidity varies among 5.8 to 6.9 for each 100 000 children. They are only insulin dependant patients.

Adult morbidity data shows that during the period 1957-1992, there exists increasing tendency, which has been constantly rising for the last 10 years (Fig.1). The difference in the regional morbidity exists from 2.64% to 0.99%, but as a whole the northern areas exhibit higher morbidity rate.
This proportion has a drastic effect on the production of insulin and its delivery to the country. Seven areas were selected during the period 1940-1992.

The second step in our analysis was to examine the consumption of insulin and its derivatives. The proportions between the different types of insulin were as follows: 26% for intermediates, 34% for fast-acting, and 17% for long-acting insulin. The remaining 13% was for other types.

The most of new popular type of insulin in our country, but not all of them. The proportions between the different types of insulin were as follows: 26% for intermediates, 34% for fast-acting, and 17% for long-acting insulin. The remaining 13% was for other types.

In the observed period (1990-1992), the consumption of insulin and its derivatives was significantly higher than in previous years. The increase was attributed to the increased awareness of diabetes and the availability of insulin.

In conclusion, the trends in diabetic morbidity and the distribution of patients in relation to the type of diabetes therapy indicate a need for improved management of diabetes in Bulgaria. Further research is needed to understand the factors contributing to the increase in diabetes and to develop effective strategies to manage this disease.
This proportion has a different value in regional areas, but as a whole the largest industrial areas, such as Sofia, Plovdiv, Varna, Burgas, Haskovo, Sliven have more insulin dependent patients.

The second step in our research was the data analysis of the consumption of insulin and peroral antidiabetic medicines (PAM) in the country. Seven areas were observed, which cover 40% of the total population during the period 1990-1993. In accordance with the increasing morbidity there was a growing tendency in antidiabetic drug consumption as well.

The most of new popular insulin drug forms (IDF) are registered in our country, but not all of them are used in the therapeutic practice. The proportions between the type of purchased IDF are 72% for intermediate insulins, 26% for the fast acting insulins and 2% for Insulin mixes. These values have a very close correlation for the observed period (1990-1992), but in 1993 the proportion signifies 58% for intermediates, 34% for fast acting insulins, 8% for Insulin mixes and 0.11% for long acting insulins. We observed that the most purchased are the intermediate insulins, but there is an increasing tendency of the consumption of Insulin mixes and fast acting forms.
A lot of IDF producers have been registered in Bulgaria, but only 8 pharmaceutical firms play an important role of which Novo Nordisk is the leader. 38% Bulgarian IDF and 62% imported products were purchased during the observed period. More animal IDF as compared to the human IDF were consumed, probably because of the lower price, however an increasing tendency of usage of human insulin therapy was observed. The most consumed IDF are as follows:

Fast acting:  
- Insulin NS fl 400 IU (Bulgaria)
- Insulin Actrapid fl 400 IU (Danmark)
- Insulin MC fl 400 IU (Danmark)

Intermediate:  
- Insulin Lente MC 400 IU 10ml (Danmark)
- Insulin Lente S "Pharmachim" fl 400 IU (Bulgaria)
- Insulin Lente "Pharmachim" fl 400 IU (Bulgaria)
- Insulin Monotard MC fl 400 IU (Danmark)

There are 6 peroral antidiabetic medicines (PAM) registered in the country. Their trade names and producers are as follows:

Euclamid tabul 5 mg
Gilemal tabul 5 mg
Glibencamid "Pharmachim":
Maninil tabul 5 mg
Diaprel tabul 80 mg
Minidiab tabul 5 mg

During the observed period last four of the above. The proc shown on Fig. 3.

It is observed that the let "Pharmachim", but they be 2 tablets of 5mg daily.

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we of which Novo Nordisk
imported products were
able to use the lower usage of human insulin
IDF are as follows:
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U ( Danmark )
Danmark)
IU 10ml ( Danmark )
achim" fl 400 IU(Bulgaria)
chim" fl 400 IU (Bulgaria)
1400 IU ( Danmark )
dicines (PAM) registered in
ers are as follows:

Euclamid tabul 5 mg
Gilemal tabul 5 mg
Glibenclamid "Pharmachim" 5 mg
Maninil tabul 5 mg
Diaprel tabul 80 mg
Minidiab tabul 5 mg

Ciech Polfa ( Poland )
Chinion ( Hungary )
NIHFI ( Bulgaria )
Arzneimittelwerk ( BDR )
Servier labs ( France )
FarmitaliaCarlo Erba (Italy)

During the observed period, the purchased trade names were the
last four of the above. The proportional sale- values of these drugs are
shown on Fig. 3.

![FIG 3 The proportional sales - values for peroral anti-diabetic medicines](image)

It is observed that the leader is Maninil, followed by Glibenclamid
"Pharmachim", but they both are with the same generic name-
Glibenclamid. The average PAM consumption has been calculated to
be 2 tablets of 5mg daily.

The last steps of our study includes an economic assessment of
the cost of therapy of diabetics, on the basis of the product prices and physician prescribing habits (4).

The average prescribing dose for insulin dependent patient was defined to be 40 IU per day, who take this dose through all the year. Thus they consume 534 mln IU Insulin, which cost about 20 mln USD. Hence it arises as the most expensive antidiabetic therapy. For patients on PAM therapy the average daily dose has been defined to be 2 tablets of 5mg per day. Thus for the year-long therapy are needed 66 mln tablets, which cost about 1.5 mln USD.

CONCLUSION

The main results of our study can be summarised as follows:

- An increasing morbidity tendency of diabetes, specially in the last ten years. In 1993 year 147 000 patients have been registered (1.73% of the population). Most of the patients have been used peroral antidiabetic medicines (60%), followed by insulin dependant (23%).

- An increasing tendency of antidiabetic drug consumption in the country. The most purchased are intermediate insulin forms (70%), followed by the fast acting dosage forms (26%).

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- The most expensive therapy has been established for patients
who are insulin dependant, costing about 20 mln USD in 1993.

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