

Study of the Prescription of Drugs to Patients with Chronic Prostatitis in Private Clinic

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Abstract:

A complex clinical and economic analysis of drugs according to their trade names, prescribed/consumed by patients with chronic prostatitis in Ivano-Frankivsk private clinic was conducted. Using the frequency, FMR- and VD-analyses, ATC/DDD and DU90% methodologies, the structure of the prescribed/consumed units of drugs action was determined. The disadvantages of the established practice of inappropriate pharmacotherapy and the necessity to improve them in the future were studied. According to the results of the study of DU90% group it was found that 6 drugs belong to group V (vital), and only one drug belongs to group D (desirable). By the FMR-analysis, it was found that 10 drugs belong to group F, 4 drugs belong to group M and 30 drugs belong to group R. Herewith, it was found that in group F 3 of 10 drugs, in group M 2 of 4 drugs and more than half of the drugs in group C (18 of 30) belong to the group of vital medicines. The results of the VD-analysis showed that more than half of all drugs (23 out of all prescribed/consumed drugs) are vital, the rest (21 drugs) are desirable. The results of DU90% analysis showed that 7 drugs occupied 90% of the consumed DDDs. Thus, according to the results of the frequency, FMR- and VD- analyses pharmacotherapy of patients with chronic prostatitis isn't rational from the point of evidence-based medicine and needs further improvement.

Keywords: chronic prostatitis, consumption, drugs, prescription, unit of dose.

INTRODUCTION

Chronic prostatitis is a serious medical and social problem of male population and over the last 15-20 years, it has been ranked first among urological diseases [1]. According to various authors' data, from one third to half of adult males aged 20 to 50 years suffer from chronic prostatitis, up to 40% of young men feel symptoms of prostatitis, and more than 30% of men older than 50 years suffer from prostatitis or its combination with benign or malignant tumours of the prostate [4]. Pharmacotherapy of chronic prostatitis is based on the use of drugs of different groups [8], in particular antibacterial and non-steroidal anti-inflammatory drugs, alpha-adrenoblockers [12].

Social dissatisfaction with this disease is associated with frequent relapses, decreased potency and reproductive function. Therefore, the problem of searching ways to increase the efficiency of pharmacotherapy of chronic prostatitis remains relevant.

The aim of the study was to carry out a complex clinical and economic analysis of trends in the prescription/consumption of drugs according to their trade names (TN) in pharmacotherapy of chronic prostatitis in the conditions of the urological department of a private clinic.

MATERIALS AND METHODS

The methods of information search and generalization were used, as well as:

- frequency analysis, which consists in retrospective estimation of the frequency of drugs using and makes it possible to establish the trends of pharmacotherapy, since it only reflects the fact of the prescription of drugs and provides ranking the selected positions at the frequency of use – from those used most often, to those which are used rarely [5];

- FMR-analysis, which is based on the distribution of the prescribed drugs in order of decreasing their units of

doses (UD) into three groups: class F – the most often prescribed drugs, which represent about 20-30% of the positions that account for 70-80% of the UD consumed; class M – less often prescribed drugs (about 20% and 5-10% respectively); class R – rarely prescribed drugs (50-60% and 10-15% respectively) [7];

- VD-analysis, which is based on the distribution of drugs to the vital group (V), which is formed by drugs, included in the 10th edition of State Form of Drugs (SFD), [13] and the group of desirable drugs (D) [9].

- ATC/DDD methodology, which is based on the anatomical therapeutic chemical classification (ATC) of drugs and the special unit of measurement of the drugs use – Defined Daily Dose (DDD), which is the estimated average daily maintenance dose of the drug that is used according to the main indications in adults weighing 70 kg. In addition, the DDDs indicator – the number of DDD of drugs consumed by patients – was calculated according to the formula: DDDs= drug amount, g/DDD [11,14];

- DU 90% analysis, in which the calculated DDD for each drug is ranked from a higher to lower DDD value. The proportion of each drug in the total amount of DDD is calculated and two groups of drugs are formed: DU 90%, which consists of drugs that make up 90% of all consumed DDD, and the group of drugs that make up the remaining 10% of all consumed DDD. Then the DU 90% group is compared with the recommendations and protocols for treatment of a particular pathology valid at the time of research, or is evaluated by VD-analysis. Conclusions are made whether the treatment complies with accepted standards or not [3,10].

The object of the study was the information from the prescription leaflet of 110 patients of the urological department of the private clinic in Ivano-Frankivsk (Ukraine). Study period – 2017.

The analysis of prescription leaflet of out-patient medical records showed that men aged 41-50 years most

often suffer from chronic prostatitis (36.4 %), in the second place – (30.9 %) men aged 51-60 years, men whose age is over 60, suffer from this disease much less

often (12.7%); at the age of 20-30 years – 10.9%, and at the age of 31-40 – only 9.1% [6].

Table 1 RESULTS OF FREQUENCY, FMR- AND VD-ANALYZES OF THE PRESCRIBED/CONSUMED DRUGS AND OTHER MEANS IN THE CLINIC

| No | TN OF DRUG | ATX CODE | Number of UD prescribed | | Group VD |
|---|--|----------|-------------------------|---------------|----------|
| | | | abs. | proportion, % | |
| Група F (22.7 % of drugs nomenclature and 79.8 % of prescriptions) | | | | | |
| 1 | Prostaplant Forte caps. | G04CX10 | 2610 | 14.31 | D |
| 2 | Omnicep caps. 0.4 mg | G04CA02 | 2280 | 12.50 | V |
| 3 | Prostamol [®] Uno 320 mg caps. | G04CX02 | 1890 | 10.36 | D |
| 4 | Prostatilen supp. | G04CX10 | 1660 | 9.10 | D |
| 5 | Prostaplant 320 mg caps. | G04CX02 | 1560 | 8.55 | D |
| 6 | Duovit caps. | A11AA04 | 1170 | 6.41 | D |
| 7 | Prostatilen-Biopharma lyophilizate 10 mg | G04CX10 | 1060 | 5.81 | D |
| 8 | Water for injections amp. | V07AB | 1060 | 5.81 | D |
| 9 | Levofloxacin caps. | J01MA12 | 688 | 3.77 | V |
| 10 | Dicloberl supp. | M01AB05 | 615 | 3.37 | V |
| Group M (9.1 % of drugs nomenclature and 10.6 % of prescriptions) | | | | | |
| 11 | Fokusin caps. 0.4 mg | G04CA02 | 570 | 3.13 | V |
| 12 | Aevit caps. | A11JA | 540 | 2.96 | D |
| 13 | Beresh drops Plus 100 ml | A12CX | 430 | 2.36 | D |
| 14 | Diclofenac supp. | M01AB05 | 390 | 2.14 | V |
| Group R (68.2 % of drugs nomenclature and 9.6 % of prescriptions) | | | | | |
| 15 | Vitaprost supp. | G04BX50 | 360 | 1.97 | D |
| 16 | Omnicep ocs tab. 0.4 mg | G04CA02 | 180 | 0.99 | V |
| 17 | Flostin caps. 0.4 mg | G04CF02 | 180 | 0.99 | V |
| 18 | Ciprofloxacin 500 tab. | J01MA02 | 150 | 0.82 | V |
| 19 | Ciprinol 500 caps. | J01MA02 | 130 | 0.71 | V |
| 20 | Prostamed tab. | G04CX | 120 | 0.66 | D |
| 21 | Tamsulostad caps. 0.4 mg | G04CA02 | 90 | 0.49 | V |
| 22 | Pantocrinum sol. 50 ml | A13A | 80 | 0.44 | D |
| 23 | Pravenor caps. | DS* | 60 | 0.33 | D |
| 24 | Fitoprost supp. | HPM** | 40 | 0.22 | D |
| 25 | Leflocin sol. 100 ml | J01MA12 | 35 | 0.19 | V |
| 26 | Urorec caps. 4 mg | G04CA04 | 30 | 0.16 | D |
| 27 | Tamsin Forte tab. 0.4 mg | G04CA02 | 30 | 0.16 | V |
| 28 | Omix caps. 0.4 mg | G04CA02 | 30 | 0.16 | V |
| 29 | Formen Kombi caps. | DS | 30 | 0.16 | D |
| 30 | Abyflox tab | J01MA12 | 24 | 0.13 | V |
| 31 | Prostalin supp. | G04CX10 | 20 | 0.11 | D |
| 32 | Ceftriaxone powder | J01DA13 | 16 | 0.09 | V |
| 33 | Natrii chloridum amp. | B05X A03 | 16 | 0.09 | D |
| 34 | Ofloxin tab. | J01MA01 | 13 | 0.07 | V |
| 35 | Tavanic sol. 100 ml | J01MA12 | 10 | 0.05 | D |
| 36 | Lymphomyosot sol. | HM*** | 10 | 0.05 | D |
| 37 | Dexalgin amp. | M01AE12 | 10 | 0.05 | V |
| 38 | Reumoxicam amp. | M01AC06 | 10 | 0.05 | V |
| 39 | Urosept supp. | J01MB04 | 10 | 0.05 | V |
| 40 | Prostatofit tinct. | G04CX10 | 10 | 0.05 | D |
| 41 | Analgin amp. | N02BB02 | 8 | 0.04 | V |
| 42 | Levoflox tab. | J01MA12 | 5 | 0.03 | V |
| 43 | Suprastin amp. | R06AC03 | 5 | 0.03 | V |
| 44 | Ofloxacin tab. | J01MA01 | 5 | 0.03 | V |
| Total | | | 18240 | 100.0 | x |

Notes: *DS – dietary supplement, **HPM – hygienic and prophylactic mean, *** HM – homeopathic mean

RESULTS AND DISCUSSION

It was established that urologists of the private clinic used 16 drugs according to the International Nonproprietary Names (INN), in the form of 44 TN.

Frequency analysis revealed that the investigated TN of the drugs were characterized by proportion of prescriptions within 0.03-14.31% from the total number of prescriptions (Table 1).

The largest amount of the consumed UD is characteristic for the Prostaplant Forte (14.31%), Omnic (12.50%), Prostamol Uno (10.36%), Prostatilen (9.10 %), Prostaplant (8.55 %), Duovit (6.41 %), Prostatilen Biopharma lyophilizate (5.81%), Water for injections (5.81 %), Levofloxacin (3.77%), Dicloberl (3.37%), Fokusin (3.13%), Aevit (2.96%), Beresh drops Plus (2.36%), Diclofenac (2.14%), Vitaprost (1.97%). For the remaining 29 drugs the proportion of the UD consumed was lower than 1%.

At the same time, it was found that urologists prescribed 4 drugs referred to dietary supplements, homeopathic and hygienic and prophylactic means (Pravenor – 0.33%, Fitoprost – 0.22%, Formen Kombi – 0.16%, Lymphomyosot – 0.05%).

By the FMR-analysis it was determined that 10 drugs (22.7 %) referred to the group F were prescribed in 79.8 % of cases; 4 drugs (9.1%) referred to the group M

were prescribed in 10.6 % of cases; 30 drugs (68.2%) referred to the group R were prescribed only in 9.6 % of cases.

The results of the VD-analysis showed that more than half of all drugs (23 out of all prescribed drugs) are vital, the rest (21 drugs) are desirable. Herewith, it was found that in group F only 3 drugs (Omnic, Levofloxacin, Dicloberl), in group M 2 drugs (Fokusin, Diclofenac) and more than half of the drugs of the group C (18) belong to the group of vital medicines. Consequently, vital drugs are in all three FMR niches.

Thus, according to the results of the frequency, FMR- and VD- analyzes pharmacotherapy of patients with chronic prostatitis isn't rational from the point of evidence-based medicine and needs further improvement.

It has been found that the defined daily dose (DDD) is calculated for only 26 out of the total number of prescribed drugs (59.1 %). Undoubtedly, this leads to a certain underestimation of consumption [2].

During the studied period 2280 DDDs Omnic, 1170 DDDs Duovit, 688 DDDs Levofloxacin, 570 DDDs Fokusin, 505 DDDs Dicloberl, 320 DDDs Diclofenac, 180 Flosin and 180 Omnic ocas were consumed by chronic prostatitis patients. For the rest of the drugs rates were less than 100 DDDs (Table 2).

Table 2 RESULTS OF THE ANALYSIS OF THE AMOUNT OF PRESCRIBED/CONSUMED DDD DRUGS BY PATIENTS WITH CP

| No | TN of drug | ATX code | Amount of the used drug | | Drug consumption | |
|--------------|--------------------------|----------|-------------------------|----------|------------------|---------------|
| | | | UD | g, mg | DDD | DDDs |
| 1 | Omnic caps. 0.4 mg | G04C A02 | 2280 | 912 mg | 0.4 mg O | 2280 |
| 2 | Duovit caps. | A11A A04 | 1170 | - | 1 tab. = 1 UD | 1170 |
| 3 | Levofloxacin 500 mg | J01M A12 | 688 | 344 g | 0.5g O | 688 |
| 4 | Fokusin caps. 0.4 mg | G04C A02 | 570 | 228 mg | 0.4 mg O | 570 |
| 5 | Dicloberl supp. | M01A B05 | 615 | 50.5 g | 0.1g R | 505 |
| 6 | Diclofenac supp. | M01A B05 | 390 | 32 g | 0.1g R | 320 |
| 7 | Flosin caps. 0.4 mg | G04C A02 | 180 | 72 mg | 0.4 mg O | 180 |
| 8 | Omnic ocas tab. 0.4 mg | G04C A02 | 180 | 72 mg | 0.4 mg O | 180 |
| 9 | Tamsulostad caps. 0.4 mg | G04C A02 | 90 | 36 mg | 0.4 mg O | 90 |
| 10 | Ciprofloxacin 500 mg | J01M A02 | 150 | 75 g | 1g O | 75 |
| 11 | Ciprinol 500 mg | J01M A02 | 130 | 65 g | 1g O | 65 |
| 12 | Leflocin 500 mg | J01M A12 | 35 | 17.5 g | 0.5 g O | 35 |
| 13 | Omix caps. 0.4 mg | G04C A02 | 30 | 12 mg | 0.4 mg O | 30 |
| 14 | Tamsin Forte tab. 0.4 mg | G04C A02 | 30 | 12 mg | 0.4 mg O | 30 |
| 15 | Abyflox 500 mg | J01M A12 | 24 | 12 g | 0.5 g O | 24 |
| 16 | Ceftriaxone 1.0 | J01D D04 | 16 | 16 g | 1 g P | 16 |
| 17 | Urorec caps. 4 mg | G04C A04 | 30 | 120 mg | 8 mg O | 15 |
| 18 | Tavanic 500 mg | J01M A12 | 10 | 5 g | 0.5 g O | 10 |
| 19 | Reumoxicam 10 mg | M01A C06 | 10 | 100 mg | 15 mg P | 6,7 |
| 20 | Ofloxin 200 mg | J01M A01 | 13 | 2.6 g | 0.4 g O | 6,5 |
| 21 | Levoflox 500 mg | J01M A12 | 5 | 2.5 g | 0.5 g O | 5 |
| 22 | Dexalgin 25 mg | M01A E17 | 10 | 250 mg | 75 mg P | 3,3 |
| 23 | Ofloxacin 200 mg | J01M A01 | 5 | 1 g | 0.4 g O | 2,5 |
| 24 | Urosept 0.2 g | J01M B04 | 10 | 2 g | 0.8 g O | 2,5 |
| 25 | Analgin 500 mg | N02B B02 | 8 | 4 g | 3 g P | 1,3 |
| 26 | Suprastin 25 mg | R06A C03 | 5 | 0.125 g | 0.15 g O | 0,8 |
| Total | | | 6684 | x | x | 6311.6 |

Notes: UD – unit of dose; DDD – received from ATC/DDD index 2017; O – values for oral drugs; P – values for parenteral drugs; R – values for rectal drugs.

Table 3 RESULTS OF FREQUENCY AND DU90% ANALYZES OF THE PRESCRIBED/CONSUMED DRUGS

| Frequency analysis | | | | DU90% analysis | | | |
|--------------------|-------------------------------------|-------------------------|---------------|----------------|------------------------|-------------|---------------|
| No | INN | Amount of UD prescribed | % | No | INN | DDDs | % |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Prostaplant Forte | 2610 | 14.31 | 1 | Omnice [®] | 2280 | 36.12 |
| 2 | Omnice caps | 2280 | 12.50 | 2 | Duovite | 1170 | 18.54 |
| 3 | Prostamol [®] Uno | 1890 | 10.36 | 3 | Levofloxacin | 688 | 10.90 |
| 4 | Prostatilen supp. | 1660 | 9.10 | 4 | Fokusin [®] | 570 | 9.03 |
| 5 | Prostaplant [®] | 1560 | 8.55 | 5 | Dicloberl [®] | 505 | 8.00 |
| 6 | Duovite | 1170 | 6.41 | 6 | Diclofenac | 320 | 5.07 |
| 7 | Prostatilen lioph. liliopfBiopharma | 1060 | 5.81 | 7 | Flosin | 180 | 2.85 |
| Total | | 12230 | 67.04 | Total | | 5713 | 90.52 |
| 8-44 | Other drugs | 6010 | 32.96 | 8-26 | Other drugs | 598 | 9.48 |
| Total | | 18240 | 100.00 | Total | | 6311 | 100.00 |

DU90% analysis revealed that 7 drugs occupied 90 % of the consumed DDDs (Table 3).

Correlation between the frequency of prescription and the amount of the consumed DDDs is observed for only two drugs – Omnic and Duovite (28.6 %). Frequency of prescription of Prostaplant Forte, Prostamol Uno, Prostatilen, Prostaplant, Prostatilen Biopharma lyophilizate, which are not included in DU90%, is within 5.8-14.31 %. However, Levofloxacin, Fokusin, Dicloberl, Diclofenac and Flosin (which are formulary drugs) are included in DU90%, but the frequency of their prescription is less than 4.0 %.

According to the results of the study of DU90% group it was found that 6 drugs belong to group V (vital), and only Duovite belongs to group D (desirable).

CONCLUSIONS

- On the basis of the study of the prescription/consumption of drugs for patients with chronic prostatitis in the urological department of the private clinic in Ivano-Frankivsk, it was revealed that according to the frequency analysis, 15 of 44 drugs were prescribed/consumed the most frequently. By the FMR-analysis, it was found that 10 drugs (22.7%) belong to group F and were prescribed in 79.8% of cases, 4 drugs (9.1%) belong to group M and were prescribed/consumed in 10.6% of cases, and 30 drugs (68.2%) belong to group R and were prescribed/consumed in 9.6% of cases. Herewith, it was found that in group F 3 of 10 drugs (Omnic, Levofloxacin, Dicloberl), in group M 2 of 4 drugs (Fokusin, Diclofenac) and more than half of the drugs in group C (18 of 30) belong to the group of vital medicines.
- The results of the VD-analysis showed that more than half of all drugs (23 out of all prescribed/consumed drugs) are vital, the rest (21 drugs) are desirable.
- The results of DU90% analysis showed that 7 drugs occupied 90 % of the consumed DDDs. The absolute majority of these drugs (except Duovite) belong to the group V (vital). Correlation between the frequency of prescription and the amount of the consumed DDDs is noticed for only two drugs – Omnic and Duovite (28.6 %).

- Conducted complex clinical and economic analysis allowed to determine the structure of the prescription/consumption of drugs according to their trade names for the pharmacotherapy of chronic prostatitis; to reveal the disadvantages of the established practice of inappropriate pharmacotherapy and the necessity to improve them in the future due to increased use of vital drugs.

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