Repertory mechanisms using standard and original calculation methods in the program "Peresvet Homeopathy" HER. Metaksa, A.A. Fadeev, M.C. Vasin (Federal Scientific Clinical and Experimental Center for Traditional Methods diagnostics and treatment of Roszdrav, Moscow)

About two centuries separate us from the appearance of the first reference books of symptoms of homeopathic remedies and the original methods of choosing similium. To date, more than 200 different repertories are known, which are used for different cases [1, 2, 3]. But until now, the philosophical foundations of the method, developed by S. Hahnemann, and concerning, among other things, general concepts of repertorization, remain fundamental.

The basic principle of searching for such a remedy is described by S. Hahnemann in the "Preface" "Materia medica pura" and is still used in homeopathy under the name of the manual method of repertorization. It is based on the choice of such a remedy that would cover most of the presented symptoms, with special attention paid to the most specific and characteristic symptoms of the patient [4].

With the emergence of new repertoires and the further development of the homeopathic method, the technique of repertorization has improved. At the same time, special attention was paid to the qualitative assessment of symptoms, their analysis and ranking according to the degree of importance. Various repertory techniques came to be based on the choice of different groups of symptoms, such as the Roberts and Dr. Dhawal method [5], the key symptom method, St. Andrew "[6]. The use of homeopaths included a stable division of symptoms according to the degree of significance into general and particular, mental and physical, complete and defective, basic and concomitant, fresh and old, common and unusual, constant and alternating, pathological, causal, key, eliminating [7,8].

The first changes in numerical methods of assessment occurred after the emergence of gradation of drugs. For the first time, the division of drugs according to the degree of importance was introduced by Bönninghausen in the "Therapeutic Pocket Guide". This gradation was based on the frequency and intensity of the onset of symptoms in the subjects and the confirmation of the effectiveness of the drug in practice [9]. Thus, not only the sum of the symptoms overlapped by the drug was calculated, but also the sum of the drug scores scored in the repertory rubrics was indicated.

Later, works appeared indicating the need for a comparative assessment of the severity of both the drug and the symptom for the patient [10].

With the advent of computer repertory, quantitative assessment methods have advanced far ahead, leaving the physician with the most difficult task - to rank the patient's symptoms himself and select the most valuable for repertorization. Expert analysis systems were created that reproduce the logic of thinking of famous homeopaths, such as in the "Radar" program [11]. Returning to numerical methods of analysis, it must be said that many computer programs, armed with modern methods of mathematical analysis, began to offer various calculation parameters. At the same time, not one or two, but dozens of new criteria appeared, so that the doctor again faced an equally difficult task - to determine which criterion to focus on when choosing such a remedy. Such an abundance of the proposed criteria was associated with the desire to quantitatively, using empirically selected coefficients, to assess the quality of the symptom and the rubric corresponding to the symptom, the degree of reliability of the drug and the features of its pathogenesis, the significance of the symptom for the patient, etc. In recent years, it has become clear that this path is irrational , because not only does it not help, but sometimes it confuses the practitioner. Therefore, for the numerical analysis, two ways were chosen - to minimize the number of evaluation criteria by the most significant and / or to try to create a complex criterion that would take into account the necessary parameters [12].

But what is hidden behind this complex criterion, as a rule, remains a secret behind a family seal, and the homeopath has to completely rely on the professionalism of those whose software product he purchased. Realizing how important it is for a practitioner to understand what and why the expert system offers, what criteria to trust and to what extent, and to be able, if necessary, to manage the settings of the expert system, we want to present the results of our work, the result of which was the creation of a set of diagnostic criteria for repertorization, included to the program "Peresvet Homeopathy". The analytical system of the "Peresvet Homeopathy" program uses a mathematical approach based on an integral assessment of a number of parameters associated with various characteristics of the symptom, drug and the analyzed rubric.

All presented criteria can be divided into two main groups:

-Classic criteria.

- Additional or non-classical criteria.

Classical criteria for repertorization

1. The sum of drug scores (SD) is an arithmetic sum points of the given drug in all noted symptoms. The score of a drug in the repertory is coded in font (normal, italic, bold) and reflects its value in the appointment. This characteristic is rather arbitrary and means that with a value of 3 points, when proving the drug, this symptom occurred in more than half of the subjects and was often confirmed by the practice of prescribing, 2 points was found in a limited number of subjects and was only sometimes confirmed in practice. The value of 1 point indicates that the drug is included in this rubric, mainly based on the results of successful clinical experience [5].

Mathematically, the sum of the drug scores can be described by the formula SB = -Bi. But, since all the selected symptoms have a different degree of significance for the patient, it is possible for them to recalculate these criteria, taking into account the intensity. In this case, the formula will slightly change C5 '= - (ISi \* Bi) - the sum of points with

## given the intensity

2. The sum of symptoms (CC) is the number of symptoms (among selected) in which the drug occurs. Since this criterion is absolute and does not take into account the degree of coverage of all selected symptoms, an additional parameter Coverage of Symptoms (OS) is also calculated - the ratio of symptoms covered by the drug to the total number of symptoms taken into repertorization, expressed as a percentage.

The sum of the symptoms, depending on the intensity of the symptom, and, therefore, the significance for the patient, can also be recalculated with the addition of the sum of the intensity factors of the selected symptoms. The OS indicator does not change with this recalculation.

Complex and specific criteria for repertorization

The complex similarity criterion (KP) is a complexa function that includes a combination of different parameters related to the characteristics of the analyzed drug, symptom and the corresponding symptom heading. It is based on the classic criterion of the Amount of Points(SB) taking into account the intensity of symptoms.

Additional parameters included in the CP

1. The complementary intensity factor (ISF) represents is a function of the ratio of the number of symptoms taken in repertorization to the number of symptoms with a greater or equal degree.

For example, a doctor has marked 4 symptoms as (symptom-intensity) A-2, B-3, C-2, D-1.

Then, for each symptom, there will be the following ISF:

• for symptom A: ISF (A) = Function (4/3).

Three symptoms A, B, C have an intensity greater than or equal to 2.

• for a symptom B: ISF (B) = Function (4/1).

One symptom B has an intensity of 3.

• for a symptom C: ISF (C) = Function (4/3).

Three symptoms A, B, C have an intensity greater than or equal to 2.

• for a symptom D: ISF (D) = Function (4/4).

Four symptoms A, B, C, D have an intensity greater than or equal to 1.ISF makes it possible to take into account the doctor's mistakes when setting the intensity symptoms. If all symptoms are of equal intensity, this does not in any way affect the value of the complex similarity criterion. With a clear differentiation of symptoms according to the degree of severity, drugs for the symptom that is most significant among the entire set of those selected will receive an additional advantage. This is a kind of reflection of the uniqueness of the symptom in terms of intensity.

2. The coefficient of the hierarchy, or the significance of the symptom (Kie) allows rank all selected symptoms in order of importance using additional amplification factors. Qualitative division of all symptoms into three groups (mental, general and local) is carried out at the stage of selection suitable headings in the repertory, or their registration. The hierarchical affiliation of a symptom can be changed by the user or set manually at his discretion. So, for example, the "ROT" chapter, which is local in its purpose, includes the general heading "Taste, smack", which contains symptoms associated with the function of one of the sense organs. Symptoms of this category can be regarded as both general and local. The choice is up to the doctor.

The use of the coefficients of the hierarchy leads to the fact that the weight of drugs, depending on belonging to a particular category, increases as many times as the coefficient of significance is defined in the settings of the analytical system.

The following coefficients are used by default: for mental symptoms - 2.2; for general - 1.8; for local - 1.0. With some experience, the user can change these values, while the set coefficients apply to all symptoms of the specified categories of the hierarchy.

3. The coefficient of significance for the etiological symptom (Ke) allows intensify symptoms that indicate the cause of the painful symptom or condition. When choosing a symptom in the repertory, each of these symptoms needs to be individually labeled.

So, for example, rubrics containing the preposition from (from, from, from, to) in the English version do not always establish such an affiliation, but rather fix the circumstances after which a symptom or its change occurs. Therefore, in each specific case, the homeopathic physician himself determines the causality of the symptom.

It is far from always possible to find etiological symptoms, therefore this is a real find, which must be assessed by the appropriate strengthening of the drugs related to this symptom. The program uses a default gain of 2.5, which can also be changed by the user.

4. The coefficient of significance for an unusual symptom (Kn) solves the most important task: not to "lose" an unusual symptom among the multitude of selected drugs. Even S. Hahnemann drew attention to the fact that "when searching for a homeopathic specific remedy, one should keep in mind the most striking, single, unusual and specific (characteristic) signsand symptoms, because especially they must correspond to very similar symptoms in the list of symptoms of the selected medicine in order to consider this medicine the most suitable for treatment "[13].

Referring to the scrupulous study of this issue by I.V. Tiraspolsky and O.V. Agrinsky, let us point out the characteristic signs of such symptoms [14,15]. First - these are atypical symptoms for the population, which means they are rare. The second is the symptoms of an unusual, atypical course of the disease or a paradoxical nature of the manifestation. The third is unusual concomitant symptoms that are rare against the background of the underlying disease or / and are not associated with a visible pathophysiological relationship. Among the listed groups of symptoms, modalities associated with conditions of improvement or worsening of the condition deserve special attention. Based on the characteristics of unusual symptoms, it seems possible to automatically label them with this feature when registering a symptom. But this task can only become feasible after the creation of a repertory of unusual symptoms and requires the additional efforts of experienced professionals. For unusual symptoms in the program "Peresvet Homeopathy" the default coefficient is 5.0, thereby emphasizing its greatest importance in comparison with other categories of symptoms.

5. Parameter BF1 provides the choice of the most outstanding funds rubrics, taking into account the degree of their uniqueness. Bf1 is a function of the ratio of the total number of drugs in a symptom to the number of drugs having the same or higher score. For example, in the rubric there are 8 drugs with the following characteristics of the type (drug-grade): A-3, B-2, B-2, G-2, E-1, F-1, Z-3, I-3. Then for each drug there will be the following BF1

• for drug A: BF1 (A) = Function (8/3).

Three drugs A, C, I have a score of 3. Similarly, for drugs H and AND.

• for preparation B: BF1 (B) = Function (8/6).

Six drugs A, B, C, D, H, I have a score equal to or greater than 2. Similarly for drugs C and D.

• for preparation E: BF1 (E) = Function (8/8).

All drugs have a score greater than or equal to 1. Similarly for drug G. Thus, the fewer drugs in a rubric have the highest degree of confidence, or reliability, the more they are outstanding and, therefore, receive an additional gain. This parameter sharply emphasizes cases where a symptom has one strong drug, considering the symptom as the key one [16].

No less important is the BF1 criterion in the case of choosing large rubrics containing many drugs, including grade 3, when the value of the selected rubric and its preparations decreases accordingly.

6. Parameter BF2 takes into account the uniqueness and significance of the symptom in the pathogenesis of this drug. Bf2 is a function of the ratio of the number of symptoms in the pathogenesis of a drug to the number of symptoms of a given drug, where it has the same score or more than the marked symptom. In other words, a function is calculated that is inverse to the frequency of occurrence of grade 2 or 3 symptoms in the pathogenesis of the drug.

The fewer reliable symptoms in the pathogenesis of a drug, the more unique and significant they are, and thus deserve closer attention. These may be key symptoms of this drug that need strengthening.

For polychrests with an approximately equal ratio of grade 2 and 3 symptoms, BF2 is less important than for small to medium-sized homeopathic remedies. For small preparations, BF2 is a criterion for their enhancement.

7. Parameter R is a function of symptom path length (number of levels hierarchical chain of symptom in the repertory). This parameter in the repertory of J.T. Kenta is important because it reflects the degree of usefulness of the symptom [7]. The more

we have a detailed description of the symptom, the more important is the heading that simultaneously describes several of its characteristics. It is clear that generalizing general headings will have the least weight and, conversely, a certain priority will be given to the clarifying headings located within the general headings.

8. Parameter SR - a function of the rubric size - takes into account the number of drugs that are in a rubric, giving priority to rubrics with a small number of drugs. The parameter is described by an exponential function including the coefficient K (SR). The value of the SR parameter is always less than 1. Thus, multiplying the complex criterion by this coefficient leads to a decrease in the total weight of the drug. The more drugs in a rubric, the lower the SR value. With a value of K (SR) = 200, the SR parameter does not make a significant correction to the value of the complex criterion. To make this impact more noticeable, it should be reduced. By default, the user is offered the value of K (SR) = 100. It is clear that the lower the value of K (SR) is set, the more forcefully the drugs of small categories will assert themselves.

By default, when calculating the CP, all additional parameters are used. If necessary in the calculation settings, some parameters can be excluded from consideration. In this case, a variety of particular criteria can be obtained, emphasizing any particularities of the case.

## II. Particular criteria for repertorization of MR and MP

Particular criteria are particular sections of the complex criterion for the similarity of KP, in which the influence of other additional parameters is insignificant, and the criterion stated in their name comes out on top.

1. The criterion Small rubrics (MR) grotesquely enhances the significance preparations of small headings. To make this influence significant, the K (SR) small preparations =10. As mentioned above, increasing the value of K (SR) small preparations up to 200, you can neutralize this influence and get the classic criterion of the Amount of SB Points, taking into accountintensity of symptoms.

2. Criterion Small preparations (MP) - a particular criterion that allows get a slice of drugs depending on the number of symptoms in the pathogenesis.

The mathematical approach to its calculation is similar to the Criterion Small rubrics. By default, the settings are set to K (SP) = 65. By increasing this parameter, we approach the classical criterion of the SumSB points, taking into account the intensity of symptoms and, conversely, reducing itsignificance, we significantly emphasize the dependence of drugs on the size of their pathogenesis. Thus, the advantage is gained by small drugs as opposed to polychrests, which have thousands of symptoms in their pathogenesis.

Thus, the presented approach to assessing the selected symptoms makes it possible to rely on both the tested traditional methods of repertorization and to use the original algorithms and capabilities of computer programs.

The proposed repertorization mechanisms make it possible to fully assess the features of a particular case, symptom, rubric, drug, etc. As a result, the homeopathic doctor receives the most weighty criteria, including a comprehensive similarity criterion for KP (similar to the Totality criterion in English-language programs), Small Rubrics and Small Rubric, respectively. In addition, the structure of the integral criterion of KP, which is complex in its composition, is presented in detail and the mechanism of its flexible adjustment and modernization is described.

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