Modern Journal of Language Teaching Methods (MJLTM)
ISSN: 2251-6204
www.mjltm.org

Types Of Semantic Relations In The Medical Terminology Of The English And Russian Languages

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Abstract

The article is devoted to the analysis of types of semantic relations of medical terms in the English and Russian languages. The phenomena of synonymy, antonymy, polysemy and homonymy of terms of human diseases in the studied languages serve as the subject matter of analysis.
Thematic justification is stipulated by insufficient knowledge of medical terminology on the material of multi-structural languages; underinvestigated semantic features of medical terminology and patterns of their functioning in the studied languages.
In the given study there were analyzed 1320 medical terms of disease names in English and Russian (648 nominations in the Russian language, 672 nominations in the English language). The total number of terms involved in different types of semantic relations amounted to 189 terms in the Russian language, and 219 terms in the English language.
The phenomenon of synonymy was found in 120 terms in English and 106 terms in Russian, which is 54% in English and 56% in Russian from the total number of terms involved in different types of semantic relationships. The phenomenon of antonymy is typical both for English terminology and for Russian, practically in the same quantitative ratio: 68 terms in English and 63 terms in Russian (32% in English and 33% in Russian from the total amount of terms involved in different types of semantic relations).
The phenomenon of homonymy was found in 8 terms in the Russian language and in 12 terms in the English language (correspondingly 4% and 5% from the total amount of terms involved in different types of semantic relations). In the Russian terminology of disease names the phenomenon of polysemy is less common than in English: 12 terms in Russian and 19 terms in English (7% and 9% from the total amount of terms involved in different types of semantic relations, respectively).
The considered processes in medical terminology differ from those in common-literary vocabulary. The difference is that these processes do not affect the characteristic lexical and semantic features of terminology.

Keywords: term, term system, medical terminology, types of semantic relations, synonymy, antonymy, polysemy, homonymy.

Introduction

The terminology of any language is not only a collection of terms and word-combinations. Scholars believe that "terms that are part of one system have a semantic consistency" [1, p. 44]. Semantic consistency is also a characteristic feature of medical terminology, since it is a systemic organization that is the result of the interaction of extralinguistic systemacity, that is the consistency of realities and concepts, on the one hand, and the linguistic systemacity proper, which finds expression in a certain relation to semantic processes and peculiarities of term-

formation models [2].

The question of the systematic nature of vocabulary is concerned by many linguists, including O.S. Akhmanova [3], A.A. Reformatsky [4], V.M. Leichik [1], etc. Since the most controversial to terminology is the question whether the main lexical and semantic processes such as polysemy, homonymy, synonymy, and antonymy are conceivable in it, then the same question can be considered relevant for medical terminology.

Research Methodology

Terms and terms-collocations selected from single and bilingual dictionaries, medical encyclopedias of English and Russian serve as the subject matter of analysis. In the course of the study there were analyzed 1320 medical terms of disease names of the English and Russian languages (648 nominations in Russian, 672 nominations in English).

The analysis of theoretical and supporting data comprise the usage of such methods as continuous sampling method (selection of factual data); inductive-deductive method (comprehension and integration of theoretical information and observation); comparative method (the identification of similar and distinctive features of the terminology of two languages); lexicographic analysis (defining semantic features of terms by studying vocabulary definitions); method of statistical analysis (statistical calculations).

Study Results and their Discussion

The question of synonymy, both in common-literary language and in terminology, has attracted the attention of researchers long ago.

In the appendix to the "Encyclopaedic dictionary of medical terms" M.N. Chernyavsky distinguishes two types of terms-synonyms: equivalent and interpretative. The scientist includes synonyms with the same motive feature in sound complexes to the first type, which is fixed by different root or word-building elements with the same or similar meanings. To the second type, the scientist refers to synonyms with a different motivate attribute [5].

The analysis shows that both the Russian and English languages are characterized by the presence of medical terms denoting the names of human diseases, which are pairs of alternatives consisting of terminology elements of Greco-Latin origin. For example, trench mouth – Vincent's disease, spotted sore throat – angina follicularis, poor blood – anemia – deficiency of blood, chronic bronchitis – winter cough, gastroenteritis – stomach flu, etc.; Rus. tuberkulez – chahotka, stolbnyak – katalepsiya, ishuriya – zaderzhka mochi, aktinicheskij dermatit – luchevoj dermatit, bulleznyj dermatoz – puzyrnyj dermatoz, gemohromatoz – bronzovyj diabet – pigmentnyj cirroz, kosoglazie – geterotropiya – strabizm, detskaya krapivnica – strofulus, etc.

Less often among the synonyms of the first type (equivalent) one can find complete and brief versions of the same sound complex having the same meaning. The abridged version of the term is formed in different ways: 1) creation of a shortened word from the components of the term-phrase: adenoid tumor – adenoma, alveolitis – alveolar osteitis, rheumatic arthritis – rheumarthritis, herpetic angina – herp-angina, etc.; Rus. revmaticheskij kardit – revmokardit, kistoznaya adenoma – cistadenoma, fibroadenoma – adenoma fibroznaya, psihicheskoe rasstrojstvo – psihoz, vegetativnyj nevroz – vegetonevroz, etc.; 2) creation of abbreviations: GERD (gastroesophageal reflux disease), GERD (gastro-esophageal reflux disease), CAD (coronary artery disease), ALS (amyotrophic lateral sclerosis), ALS (amyotrophic lateral sclerosis) and others.

Attention should be paid to synonyms of the interpretation type. Both outdated and modern terms can be applied for the designation of the same disease: scanty sweat – anhidrosis, spotted sore throat – angina follicularis, stomach flu –gastroenteritis, brain fever – meningitis; Rus. svinka i ehpidemicheskij parotit, zaeda i angulyarnyj hejlit, pochesuha i prurigo, etc.

When a new classification appears, interpretational synonyms may also arise: allergy to pollen – nasal allergy, monocytic tonsillitis – glandular fever – infectious mononucleosis, parenchymatous tonsillitis – follicular tonsillitis, Bamie disease – Bomholm disease – epidemic myalgia; Rus. bolezn' Botkina – gepatit A – infekcionnyj gepatit, poliartikulyarnyj artroz – generalizovannyj artroz, taezhnyj ehncefalit – vesenne-letnij kleshchevoj ehncefalit, belaya ospa – alastrim – ospa kafrov, strigushchij lishaj – dermatomikoz – dermatofitiya – trihofitiya, etc.

Synonymic relations of interpretative synonyms are based on different features of the same disease: blue fever – mountain fever – Rocky Mountain spotted fever, pappataci fever – mosquito fever – dog disease; Rus. finikovaya bolezn' – lihoradka denge – kostolomnaya lihoradka – lihoradka zhirafov – sustavnaya lihoradka, etc.

Eponymic terms can be considered as a special group of synonyms in medical terminology [6]. Term-eponomy is a kind of term, on the one hand, and it is a certain class of names, the differential peculiarity of which is an indication of the author's name, on the other hand. For example, the disease of Bermann, named after the name of the French doctor, has in the medical terminology the term synonym "sporotrichosis" – "chronic mycosis caused by parasitic fungi Sporotrichum" [7, p. 145]. This series of synonym terms can be continued: Henoch's angina – necrotic tonsillitis, Cooley's anemia – thalassemia, Pfeiffer's disease – infectious mononucleosis; Rus. bolezn' Fagge – kretinizm; bolezn' Bryusa – brucellez; bolezn' Kerlya-Urbaha – ksantoz; opuhol' Vil'msa – nefroma, etc.

The phenomenon of synonymy was found in 120 terms in the English language, which is 18% from the total number of analyzed terms and 54% from the number of terms involved in different types of semantic relationships. In Russian the phenomenon of synonymy was revealed in 106 terms, which is 16% from the total number of analyzed terms and 56% from the number of terms involved in different types of semantic relationships. The total number of terms involved in different types of semantic relations amounted to 189 terms in Russian, 219 in English. In English and Russian the average length of a synonymic series is 2-4 terms.

The analysis of the terminology of English and Russian on the material of terms denoting human diseases showed that the antonymic relations are not so numerous in comparison, for example, with synonymy.

In the medical terminology of the English and Russian languages, one can distinguish antonymy obtained by using antonymic morphemes and terminological elements.

Among the antonymous pairs of prefixes one can distinguish the following: hypo- (hyper-), oligo- (poly-), macro- (micro-).

Thanks to these antonymous prefixes, the term-antonyms are also formed. For example, hypotonia – gipotoniya (decreased muscle tone or muscular layer of the hollow organ) and hypertonia – gipertoniya (increased muscle tone or muscular layer of the hollow organ); Hyperglycaemia – giperglikemiya (high blood glucose) and hypoglycemia – gipoglikemiya (low blood glucose); hypoxia – gipoksiya (oxygen deficiency) and hyperoxia – giperoksiya (increased oxygen content in the body's tissues), etc.

Antonymy is also common among the names of human diseases, which is achieved due to the contrast of the initial terminology such as macro- (micro-). These antonymous pairs of terms are based on the opposition of the seme "big – small": micropsia – mikropsiya and macropsia – makropsiya (Greek opsis (vision)); microcornea – mikrokornea and macrocornea –makrokornea (anatomy cornea (keratoderma)); micrencephalia – mikroehncefaliya and macroencephalia – makroehncefaliya (Greek enkephalos (brain)), etc.

The semantic contrast of medical terms-names of diseases can also be traced to the example of terminological prefixes such as "oligo- / poly-". The terminology element prefix "oligo- / oligo-" is formed from the Greek word oligos (small) and has the meaning "not numerous", prefix "poly-" from the Greek polys (many), its meaning is "greater in comparison with the norm" [7, p. 255, p. 348]. Here are some examples: oligodontia – oligodentiya and polydontia – polidentiya (Latin dentis (tooth)); oligomenorrhea – oligomenoreya and polymenorrhea – polimenoreya (Greek men (month), rhoia (flow)); oliguria – oligouriya and polyuria – poliuriya (Greek uron (urine)).

Some terminology elements may have more than one antonymous prefix. For example, "poly-" is contrasted by its meaning not only "oligo-" but also "mono-" (Greek monos – single). This is confirmed by the following pairs of terms: polyarthritis / poliartrit – monoarthritis / monoartrit; polysomy / polisomiya – monosomy / monosomiya; polyneuritis / polinevrit – mononeuritis / mononevrit.

The phenomenon of antonymy is typical both for the English terminology and for the Russian language, practically in the same proportion: 68 terms in the English language, which is 10% from the total number of analyzed terms and 32% from the number of terms involved in different types of semantic relations. In the Russian language the phenomenon of antonymy has been identified in 63 terms, which is 10% from the total number of analyzed terms

and 33% from the number of terms involved in different types of semantic relationships.

The phenomenon of polysemy in the field of human diseases is unproductive, however the analysis shows that polysemy is observed in a number of cases in both studied languages.

As an example of polysemy we can bring the convergence of the meaning of an organ or a part of it and the disease of that organ. For example, "angina" has two meanings: 1. an inflammatory infection of the throat, such as quinsy; 2. a chest pain or shortness of breathing with the lesser degrees of arterial blockage [8]; 1. acute or chronic inflammation of the mucous membrane of the throat, especially the amygdala; 2. heart disease, expressed in severe attacks of heart pain [9]. In Russian the term "nevrit" is also used in two ways: 1) the nerve cell process, through which nerve impulses pass from the nerve cell to other cells or muscles; 2) inflammation of the nerve [9].

The term "hypotrophy" in English is polysemic and has the following meanings: 1. a degeneration in the functioning of an organ due to the loss of cells; 2. a condition in which growth occurs more extensively on the underside of a branch or other organ [8, p. 245]. "Gipotrofiya": 1. a set of degenerative processes in tissues. 2. microplasia, weight loss [9].

The word, expressing the generic concept, has a great opportunity to turn into a multi-valued term. Indicative in this respect is the polysemy of the word "fever". This term is both a generic word, and a medical term-hyperonym. In modern scientific medicine, the term "fever" is a hyperonym of a group of diseases and is used in a number of polylexemic medical terms for disease names.

The phenomenon of polysemy is less common in the Russian terminology of the names of diseases than in English. As a result, we found out 12 terms that have more than one meaning, which is 2% from the total number of analyzed Russian terms; in English – 19 terms – 3% from the total number of terms. This amounted to 7% from the number of terms involved in different types of semantic relationships in Russian and 9% in English.

The question of the presence of homonym terms is also relevant for the medical terminology of diseases. The presence of relations of homonymy in terminology is recognized by many scientists. For example, K.Ya. Averbukh believes that the phenomenon of terminological homonymy is generated in most cases by three factors:

1) existence in various conceptions and terminologies that are far from each other of the equally sounded and written units of nominations, the semantics of which are absolutely different;

2) the metaphorical use of a term in another special language (i.e., entry into another terminology system);

3) the existence of one object, identical names denoting different concepts in each of the special languages, depending on the angle of view of the given reality [10].

The examples of homonymy, caused by the first two factors are found among the terms of the investigated field.

As an example of the use of the same sound complex for the designations of different concepts can be taken the lexical unit "cancer". As the medical term "cancer" is a linguistic calque from Latin word cancer that is a "malignant tumor".

In the medical terminology of the English language, the terms "diffuse epithelioma", "carcinoma" or the abbreviation "Ca" are used instead of the commonly used "cancer".

The nomination "cancer" in Russian is not included in the active dictionary of health workers, it is replaced in it by the special name of a tumor (f.e., lipoma, sarcoma, leukoma, etc.). Basically, "cancer" is used in modern Russian in everyday speech, and necessarily with the indication of a sick organ – stomach cancer, lung cancer, etc.

Some scientists, for example, A.A. Reformatsky believe that the broad, complex definition of the phenomenon of homonymy of common-literary language in the terminology is represented by one of its kind, namely when the polysemy is so divergent that it becomes homonymy [4]. These are the cases when the same term may be included in different terminology of the language, which is an inter-scientific terminological homonymy.

The following terms can be related to the inter-scientific homonyms: erosion / ehroziya, anthrax / karbunkul. Their peculiarity is that they function in different scientific fields.

Erosion / ehroziya means a defect in the mucous membrane or epidermis in medicine, and in mining it is defined as the process of destruction of the surface of metal products.

Anthrax / karbunkul in medical terminology refers to rapidly developing purulent inflammation of the skin and subcutaneous tissue, and in jewelry – the name of the red gem.

In Russian the term "nefrit" and "keratit" also refer to inter-scientific homonyms. In English the term "keratitis" corresponds to the term "keratitis", which does not have homonyms, and "nephrite" is translated as "nephritis" in the meaning "inflammation of kidneys" and "greenstone" in the meaning of "green mineral".

The boundaries between polysemantic and homonymous words are very conditional.

Speaking about the term-homonyms, which call human diseases, we should note the homonymy of eponymic terms. Homonymy in this case appears as a result of the fact that scientists, doctors, on behalf of whose names the term is formed (as a rule, compound) are the namesakes.

Let us bring the examples of such homonymy.

Alexander disease / Aleksandera bolezn' (B. Alexander, the modern American physician) is a family-hereditary hemorrhagic diathesis.

Alexander disease / Aleksandera bolezn' (W.S. Alexander, the modern English neuropathologist) is "a hereditary disease of the central nervous system, clinically manifested by convulsions, central paralysis of hydrocephalus" [8, p. 54; 6, p. 38].

Mendel's symptom / Mendelya simptom (K. Mendel, 1862-1946, the German neurologist) – "soreness by pressure on the anterior wall of the anterior external auditory meatus, a sign of meningitis".

Mendel's symptom / Mendelya simptom (K. Mendel, 1862-1912, the German doctor) – "tenderness of anterior abdominal wall with percussion, a sign of peptic ulcer" [8, p. 283; 6, p.165].

As a result of the study, the phenomenon of homonymy was found in 8 terms in the Russian language and in 12 terms in the English language, which amounted to 1% from the total number of analyzed terms in the Russian language, and 2% from the total number of analyzed terms in the English language. This amounted to 4% from the number of terms involved in different types of semantic relationships in Russian and 5% in English.

Results

The examples of synonymy considered in medical terminology, particularly among the names of various diseases, indicate a large representation of this process in a special vocabulary.

In the terminological antonymy of the study group, the word-formative type of antonyms predominates due to the terminology elements of Greek-Latin origin that are opposite in meaning.

The polysemy of medical terms that define human diseases during their functioning is natural due to the asymmetry of the linguistic sign, "the same form can be used to designate different objects and perform different functions" [11, p. 109].

The phenomenon of homonymy in the field of medical terms, denoting certain human diseases, also takes place and it is a semantic process, characterized by the same features as in common-literary vocabulary.

Conclusion

Speaking about the semantic processes, we can conclude that the phenomenon of polysemy, homonymy, synonymy, antonymy in terminology is different from similar processes in common-literary vocabulary. The difference is that these processes do not affect the characteristic lexical and semantic features of terminology. They proceed in those limits that do not violate the semantic distinctness of the term. The full scope of the concept (term) is determined only by taking into account the comprehension of its place in the system of concepts of the relevant branch of knowledge, that is a bank of terms, their definitions and specific usage.

ACKNOWLEDGEMENT

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

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