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## Polish hematology on the Internet

### Abstract

The end of 20<sup>th</sup> and the beginning of 21<sup>st</sup> century have brought an intense development of the IT applications, without which people cannot imagine life. In the last years, the Internet has been playing more and more crucial role. It has become a valuable source of information for a big group of people, both patients and medical staff. Pharmaceutical syndicates, scientific units, magazines, medical clinics and departments, as well as individuals design their own websites. This article introduces a review of the most important websites about hematology.

**Keywords:** hematology, the Internet, health education.

**DOI:** 10.1515/pjph-2016-0020

### INTRODUCTION

The development of science makes communication in modern civilization much easier. The beginning of 20<sup>th</sup> century was determined by the press, radio and television development [1]. Nowadays, the media is less important, however, the Internet has been gradually replacing them – using this new technology, we can get access to the latest information concerning various fields of life.

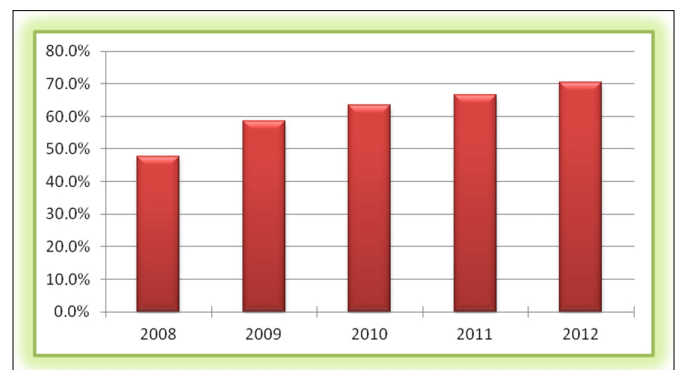
In the beginning, access to the Internet was limited, only big institutions designed websites, and in consequence, information obtained from them was more reliable. At present not only big companies design websites, but also scientific units, periodicals and individuals do. There is no control of the information published on the Internet, it is badly arranged and often wrongly classified. Moreover, many substantial mistakes appear because of putting those kind of data online not by professionals [2].

Nevertheless, the Internet undoubtedly constitutes a very useful tool for both doctors and patients. It plays an essential part especially in case of the domains, which develop very fast. The access to the newest information is essential to diagnose the patient and recommend a proper therapy. Haematology undoubtedly belongs to these domains.

#### The Internet in Poland

According to The Central Statistical Office in Poland, October 2012, approximately 70.5 % of households had access to the Internet, with at least one person in age range 16-74 years (Figure 1). This percentage is higher among big-city inhabitants, highly urbanized areas and families with small children. The Internet is the most fundamental source of information among young people (below 30 years of age), while for elderly people, television is still the most important source of information [3].

People use the Internet mainly at home (59% of respondents), in most cases for sending e-mails and searching for information about services or goods. Actually, an average Internet user devotes approximately two hours daily to web browsing, wherein more time is spent by men than women. In matters concerning health, people usually look for information about illnesses and their symptoms, moreover about healthy lifestyle and doctors office hours as well [4].



**FIGURE 1.** Percentage of households using the Internet through 2008-2012 [3].

#### Patient in the Net

The Internet offers its users different and abundant information about health issues. Not only private websites, discussion groups that gather patients around specific health problems or curative portals are designed like popular health guidebooks, but also professional portals are available, where you can find references to scientific literature [5].

Polish people more often reach for guidance concerning their health that is published on a website and they try to cure themselves. More than 26.2 billion PLN has been spent on drugs out of which more than a half has been spent on OTC drugs [6].

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Women most frequently search for information concerning health and medicine. They use internet services about specialized area and look for specific information about illnesses and their treatment. Men, on the other hand, devote on average 1/3 less time on searching this type of data than women. Men are mainly interested in topics connected with sex, addictions, joint and spine disorders as well as heart diseases [4].

### The Internet in a physician's work

The beginning of introducing the new international network technology to the medical sector dates back to 1971, when MEDLINE database appeared. Initially, it did not establish valuable source of knowledge for an average doctor, because of limited access to its resources. Not earlier than in 1997, it was essential to public knowledge and renamed as PubMed – since then it has enabled access to a wide range of medical information. Nowadays many databases facilitate searching for highly sophisticated publications [7].

Many Internet portals possess useful tools, e.g. different kinds of calculators, which after typing in the simple data can calculate the result very fast. There are also atlases with high class photos put on the website, the newest list with reimbursed drugs and guidelines.

The Internet plays also a bigger role in diagnosis and contact with patients. Currently, a wide range of telemedicine applications has become more and more popular, and the patients reach for them more often. Most valued are remote diagnosis, tele visits at the patients' home, tele rehabilitation and nurse tele health care [2]. That kind of activity definitely requires larger knowledge and intuition from the doctor because there is no direct contact with the patient. The diagnosis is based on what the patient has typed. Nevertheless, in many cases such as the Internet visits at the consulting room are connected with the will to explain problems, which can be eliminated through tele contact without patient examination, e.g. nutrition advice or interpretation of tests results. This kind of solution undoubtedly allows for saving time by both the patient and the doctor [8,9].

### Review of the hematological websites

Oncological patients constitute a specific group of people that are exposed to high level of fear and they are intensively searching for information about the course of their illnesses, treatment patterns and alternative forms of therapy. In this case, patient's awareness helps them to cope with their own health problems and it positively influences their satisfaction, mood and recovery process. Due to limited access to specialists, there are long queues in state healthcare centers and in consequence, limited time is devoted to the examination, which leads to their poor information. That is why self-education is crucial and it is the most important element is web browsing. In this article, we are presenting reviews of the most important websites concerning hematology.

#### hematoonkologia.pl

It touches the question of hematological malignancies and is addressed mainly to hematologists and other specialists that take care for hematooncological problems. The website is constantly updated; as a result, one can find the latest reports from specialist press, moreover, reports from conferences and congresses (including the multimedia presentations). Educational programs, created by a team of experts, are also available. The main aim is to motivate doctors to continue their education (Figure 2).



FIGURE 2. The website hematoonkologia.pl.

The “hematologist library” includes the most recent articles from the best Polish and foreign hematological and oncological journals. After registration and logging in, one can use a hematologist calculator, which can calculate e.g. creatinine clearance, BSA (body surface area), Sokal's predictor, Hasford's predictor, the clinical stage of multiple myeloma. Multiple Myeloma ISS (International Staging System) can predict chemotherapy risk. For registered users a complete base of hematological medicine and chemotherapy patterns are available. In the bookmarks for patients, there are many articles and guidelines written in simple language understandable for patients. The information about limfoproliferative disorders, chemotherapy, radiotherapy, haematopoietic cells transplantation, clinical research, HLA research centers, immunophenotype bone marrow examination are available. Additionally, the website contains a list of the most important foundations and associations, clinics and country consultants. There is also a medical dictionary explaining incomprehensible medical terms.

#### chorobykrwi.pl

The website deals mainly with blood diseases and transfusion medicine (Figure 3). A large amount of data is available for doctors after registration and logging in. Articles from scientific magazines are published on the website. Reports from conferences, information about workshops, trainings and national and international symposiums are also available. There is a library of curious clinical cases, moreover, discussing forums, where one can look for some advice from more experienced colleagues are open. In the patient section, there is interesting information introduced on pictures and graphs, about hemophilia, thrombocytopenia, bleeding to joints and diagnostics. The medical dictionary helps the patient to find oneself in the world of difficult and incomprehensible medical terms.

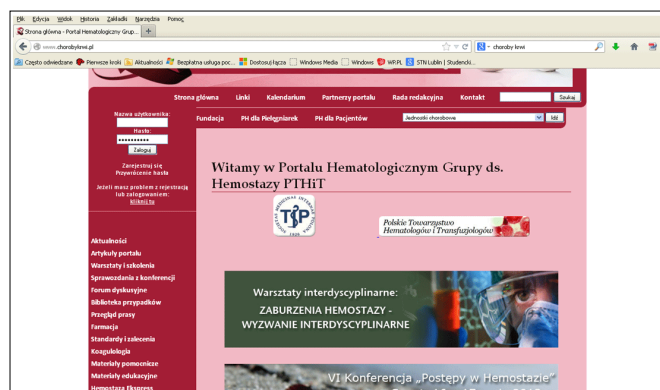


FIGURE 3. The website chorobykrwi.pl.

ihit.waw.pl

This is the website of Warsaw Institute of Hematology and Transfusion Medicine (Figure 4). In the bookmarks for patients, there is information about monoclonal gammopathy with unidentified meanings, multiple myeloma, lymphoma, chemotherapeutic agents or monoclonal antibodies. Research activities of the Institute are also described.

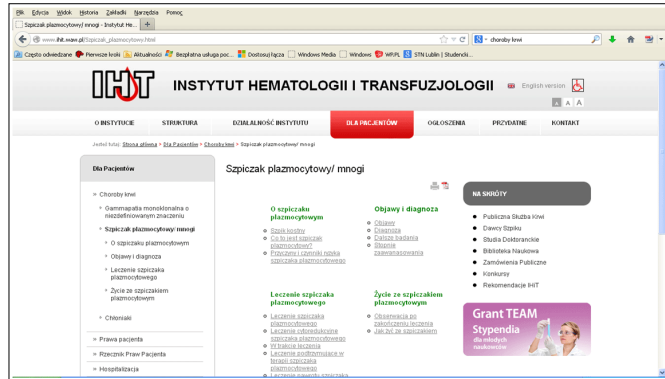


FIGURE 4. The website hit.waw.pl.

szpiczak.org

This is the Myeloma Treatment Foundation website. Apart from the information concerning the multiple myeloma, the website contains references to professional literature and to articles from journals from international and Polish sources. In the "Hematology" bookmark, one can find links to hematological atlases, which are interesting for doctors and students (Figure 5).



FIGURE 5. The website szpiczak.org.

leukemia.pl

This is the Foundation Against Leukemia website (Figure 6). It helps both people with hematological disorders and their families. It promotes knowledge connected with hyperplastic hematopoietic illnesses and bone marrow transplantation. There is not only information connected with the history of the website, but also basic news about bone marrow, leukemia and treatment methods. One can also learn how to become bone marrow donor and get acquainted with the procedure. Because the website leukemia.pl is addressed to ill people and their families, information written on this website is clear and comprehensible.



FIGURE 6. The website leukemia.pl.

obialacze.pl

Obialacze.pl is another website for patients (Figure 7). On this website, one can find information about leukemia, bone marrow transplantation and life after chemotherapy.

Apart from the topics devoted to hematological problems, there is advice about healthy lifestyle, sepsis, and liver disorders. It functions also as an online forum, where users can share information about health.

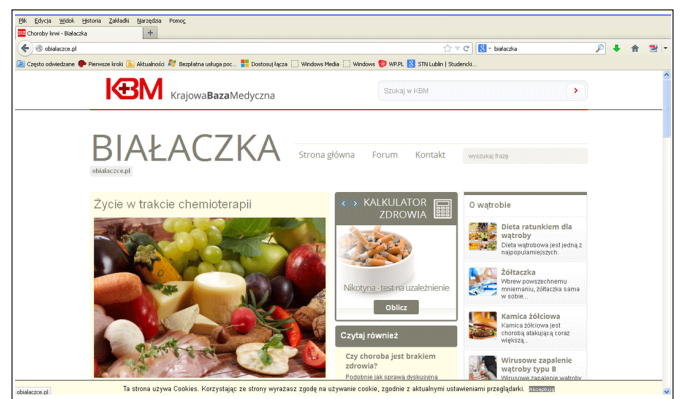


FIGURE 7. The website obialacze.pl.

CONCLUSIONS

Undoubtedly, the use of the Internet tools is much easier and cheaper in comparison with other methods of getting information. However, not always a common user is able to evaluate information uploaded on the website in terms of substantial content. In the field of hematology there is a small number of reliable websites, with the visible separation between messages directed to the doctor and the patient. Although the group of patients who are interested in this medium is increasing, the direct contact with the doctor is still the most valuable source of information.

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