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KNOWLEDGE AND ATTITUDE OF LUBLIN UNIVERSITIES STUDENTS' TOWARD THE OPPORTUNITY OF BECOMING UNRELATED BONE MARROW DONOR

Abstract: Hematopoietic Stem Cell Transplantation (HSCT) is a very important life-saving procedure to treat many disorders. In August 2014, there were more than 24.5 million donor registered in the Worldwide Bone Marrow Donor Register. In the Polish Register of Unrelated Bone Marrow and Umbilical Cord Blood Donors at the end of 2013 there were almost 540 thousand registered bone marrow donors. Despite increasing numbers of registered donors, the amount of requests also increased. It shows that the number of donors is still insufficient. The analysis of knowledge and attitude of Lublin universities students' toward the opportunity to become an unrelated bone marrow donor was the aim of our study. 1609 Lublin students from non-medical universities from different years and specializations of study, of both sexes, aged 19–35 took part in the survey. It consisted of 16 questions. There were knowledge-testing questions, and also personal ones. Among interviewees, 16% were registered as potential bone marrow donors. The reason for not being registered registration chosen most often was that the surveyed did not take this into consideration. Correct answers to all of the questions were given by 21% of students. The biggest number of incorrect answers was given to the question about a place from bone marrow is harvested — nearly 49%. Registered students showed a better level of knowledge than the unregistered. We noted a low level of knowledge about bone marrow donation and possibility of becoming potential bone marrow donor among Lublin universities students.

Key words: bone marrow, donation, survey research, students, register, potential bone marrow donors.

INTRODUCTION

Hematopoietic Stem Cell Transplantation (HSCT) is a very important life-saving procedure to treat many disorders such as: leukemia, myelodysplastic syndromes, lymphomas, some neoplasms, and congenital blood diseases. To facilitate HSCT it is necessary to find a human leukocyte antigen — matched donor [1]. The Bone Marrow Donors Worldwide provides a list of stem cell and cord blood donors. Thanks to this Register it is possible to find matching donor around the world. In August 2014 there were 74 stem cell registered donors from 53 countries and more than 24.5 million of registered donors which constitutes 0,3% of global population [2]. In Poland there were 382 registered donors per 10 thousand

people, in Germany — 1537, and in Czech Republic — 58.4. Majority of donors come from USA, Germany, and Brazil while Poland is on 7th place [3]. In the National Register of Unrelated Bone Marrow and Umbilical Cord Blood Donors at the end of 2013 there were almost 540 thousand registered bone marrow donors [4]. Polish Register stands out among others as a register with a favorable proportion of male donors (40%) and young-aged donors (41% less than 30 years old) (4). In 2013, the number of Polish donors in matching procedures for Polish recipients increased from 50% to 55%. The number of donors in the Polish Register increased faster than in the worldwide register (2)(4). From 2010 to 2013 the amount of donors in Polish register increased from almost 8500 to nearly 540 thousand, while in the worldwide register from 14.9 million to 22.6 million [2, 4]. Only a part of reported requests is realized. In spite of increasing numbers of registered donors, also the amount of requests increased. It shows that the number of donors is still insufficient [5].

AIM OF THE STUDY

Analysis of knowledge and attitude of Lublin universities students' toward the opportunity to become an unrelated bone marrow donor.

MATERIAL AND METHODS

1609 students of four Lublin's non-medical universities were surveyed in the period from March to June 2013. This research group constituted nearly 3% of all non-medical Lublin's students. The group consisted of 1098 (68%) women and 511 (32%) men. Average age was 21.5 years (maximum 35, minimum 19, and median 21). 404 (25%) students from the University of Marie-Curie Skłodowska (UMCS), 402 (25%) from the Technical University of Lublin (TU), 397 (25%) from the University of Life Sciences (ULS), and 406 (25%) from the John Paul II Catholic University of Lublin (CUL) took part in the survey. The surveyed students constituted: nearly 2% of all (25 thousand) UMCS students; 4% of all (10 thousand) students of TU, 4% of all (10 thousand) of ULS and nearly 3% of all (15 thousand) students of CUL. The interviewees represent different years and specializations of study.

The research was done using the method of a diagnostic survey. It was an authorial survey consisting of 16 questions. The first 6 were demographic questions such as: sex, age, university, year and specialization of study. Next there were 4 questions about attitudes towards registration as a potential bone marrow donor. We inquired whether or not the respondents were registered as potential bone marrow donors together with justification of the negative answer. The last part

of the questionnaire consisted of 6 one-choice knowledge-related questions. They concerned information about: place of bone marrow harvesting, diseases which not disqualify to become a bone marrow donor, and if there is any institution in Lublin where it is possible to register. Next, we wanted to check if the surveyed knew that their bone marrow can be transplanted not only to relatives, and if there is a possibility to meet the donor before transplantation. Lastly, we asked if it is allowed to withdraw the permission to become a donor from the National Register of Unrelated Bone Marrow and Umbilical Cord Blood Donors.

Statistical analyses were performed using Microsoft Office and STATISTICA Statsoft version 10. Data was analyzed using U Mann-Whitney's test and t-Student test. All data is presented as mean and median \pm SD. Significant difference was considered $p < 0.05$.

RESULTS

261 (16%) of the respondents were registered as potential bone marrow donors and 1348 (84%) were not. Women constituted the majority of the registered people (197 women — 75.5% of the surveyed). About a half of the unregistered students had considered registration. The most frequent reasons of not being registered were: the surveyed did not take this into consideration (454 people — 34% surveyed) and possible health hazards (298 people — 22% surveyed). Other options to choose were: unwillingness to register, lack of knowledge where the registration is possible in Lublin, and confirmed medical contraindications. The majority of the registered group represent UMCS (84 people, 32% of all registered), and least number of the registered represent CUL (50 people, 19% of all registered).

Correct answers to all knowledge questions were given by 331 surveyed (21%). The biggest number of all correct answers was given by students from UMCS and the smallest from ULS. Registered people, compared to the unregistered, had significantly better level of knowledge about bone marrow donation ($p < 0.001$), which is reflected in the diagram No 1 (Fig. 1).

The majority of incorrect answers was given to the question about the place of harvesting bone marrow from adults (incorrect answers — 786 people — 49%). In this question there was statistically significant difference between registered and unregistered people ($p < 0.001$). The most frequent incorrect answer was that bone marrow is harvested from the spinal cord (32%).

Also, in the question concerning if the donor can meet the recipient before the transplantation, the result was similar to the previous one about the place of harvesting bone marrow. Again, the registered students showed a higher level of knowledge comparing to the unregistered ($p < 0.001$).

The question about the possibility to donate bone marrow to an unrelated recipient turned out to be the easiest for our surveyed group (the correct answer

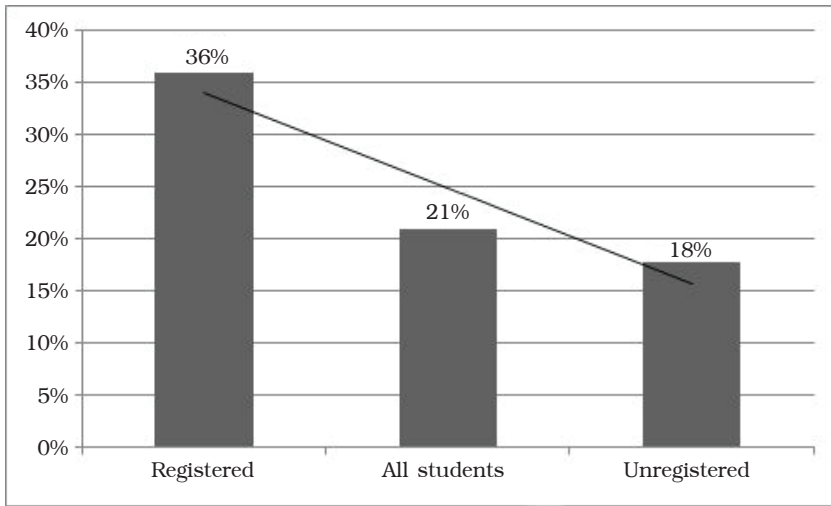


Fig. 1. Percentage of students who gave correct answers to all knowledge-related questions.

was given by 1482 people — 82% of the surveyed). We did not notice statistically significant differences between both groups in this case.

The level of knowledge about the situation which does not disqualify person from being a bone marrow donor is similar in both groups. The majority (1149 people — 71%) knew that rare blood group does not disqualify from becoming a donor, however, 13% chose psoriasis, 8,5% HBV infection and 7.1% pregnancy.

Registered students knew that they can withdraw their permission from the National Register of Unrelated Bone Marrow and Umbilical Cord Blood Donors without any consequences in contrast to the unregistered students, which is proved by our research ($p = 0.03$). This group also was aware of the place where they can register in Lublin, in contrast to the second group ($p = 0.09$).

The diagram No 2 compares knowledge levels of two chosen questions with the biggest difference in answers between the registered and unregistered group (Fig. 2).

Women generally scored better results comparing to men ($p < 0.001$), particularly in questions about donating bone marrow to unrelated people, meeting the donor before transplantation, and disqualifying diseases. Among universities, the biggest number of correct answers in knowledge-testing questions was given by UMCS students, ULS was the second, CUL had the third place, and TU was the last ($p < 0.05$).

DISCUSSION

Our research revealed insufficient knowledge among surveyed Lublin students. Also, similar studies were performed among students from Wrocław and Opole.

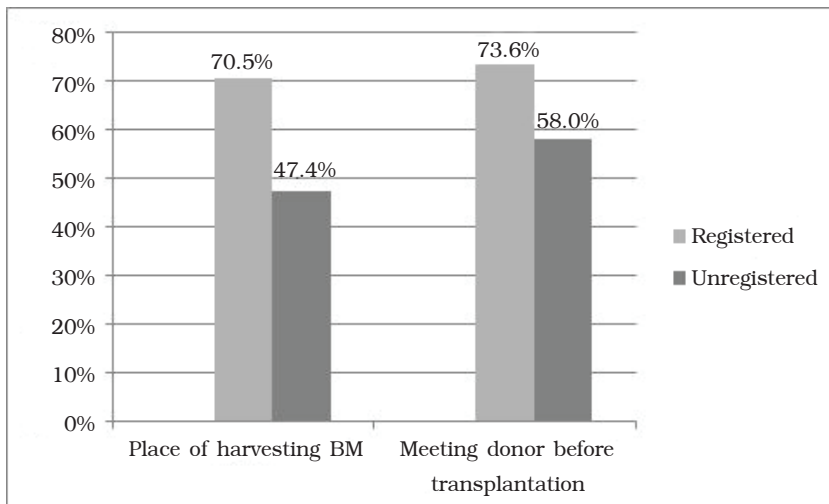


Fig. 2. Comparison of the knowledge level of the registered and unregistered students based on two chosen questions with the biggest difference in answers between the groups.

Authors proved that the level of knowledge is insufficient [6, 7]. Most frequently, incorrect answers were given to the question about the place of harvesting bone marrow from adults (49%). The same question was the most difficult for students from Wrocław, because 58% of the respondents have chosen an incorrect answer (the most frequently chosen option was spine). In the survey from Opole, interviewees showed a low level of knowledge as only 20% of them answered correctly to the part of the knowledge-testing questions. Nobody gave correct answer to all of the questions. Comparingly, in our analysis 21% of the students gave correct answers to all of this kind of questions. In Opole survey, only 20% of the students knew medical contraindications to become a bone marrow donor — in comparison to Lublin, where correct answers were given by over 71% of the surveyed. Over 80% of Lublin students knew where they can register, meanwhile in Opole it was 43%. Among students in our research the registered constituted 16% of all interviewed, in Wrocław research — 2.5%, and Opole — 6%. The majority of registered students from Wrocław were women (70%), and a similar proportion occurred in our study (75.5%). Despite the fact that students from Wrocław declared registration, their level of knowledge was low. However, we noticed that registered people had significantly better knowledge than the unregistered. The researchers from Wrocław did not find out that gender makes a difference as far as the knowledge level is concerned, but our analysis revealed relevant disparities. In an Australian research women demonstrated significantly better knowledge and were registered more often as potential bone marrow donors [8]. Research conducted in Kraków in a secondary school showed that well-informed people are more prone to donate organs (before the educational program — 8%, after that

— 90% wanted to sign the donor card). According to Kraków analysis, students who are willing to register and donate bone marrow are more often male — 80% than female — 56% [9]. Also other tests confirmed that the level of education and provided information about bone marrow transplantation are important in a decision to become potential bone marrow donors [10]. Educational campaigns and media events led to significant growth of registered potential bone marrow donors in the recent years.

CONCLUSIONS

The results of our research allow us to ascertain the following conclusions: firstly, the level of knowledge among students is insufficient and secondly, registered people have higher level of knowledge comparing to the unregistered. What is more, females have better results than males in knowledge-testing questions, and they are registered as potential bone marrow donors more often. Additionally, lack of proper knowledge can be a reason for non-registration among students. This proves the necessity to organize educational campaigns and other activities increasing awareness level of the possibility of becoming a bone marrow donor.

CONFLICT OF INTEREST

None declared.

ABBREVIATIONS

TU — Technical University in Lublin
 UMCS — University of Marie-Curie Skłodowska in Lublin
 CUL — John Paul II Catholic University in Lublin
 ULS — University of Life Sciences in Lublin

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