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The impact of social determinants on the knowledge and attitudes of Polish society regarding transplantation

Wpływ uwarunkowań społecznych na wiedzę i postawy społeczeństwa polskiego wobec transplantacji

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Summary

Introduction. Transplantation is the one of the most challenging procedures of modern medicine. The kidneys, the liver and the heart are the most commonly transplanted organs.

Aim. To evaluate the impact of selected social determinants: age, gender and education on the knowledge and attitudes regarding transplantation among Poles.

Material and methods. The study involved 59 men and 141 women (200 respondents in total) in four age groups: 18-25 (127 people), 26-40 (44 people), 41-50 (12 people) and over 50 (17 people). Only 3 respondents had primary education, 87 had secondary education, and 110 – higher education. The anonymous survey used in the study consisted of closed single and multiple choice questions. The study was conducted between December 2015 and March 2016.

Results. The level of knowledge on transplantation among Polish people is average. However, study results indicate general positive attitudes towards transplantation: a high percentage of participants reported willingness to become bone marrow and stem cell donors (38% of women and 24% of men) and organ and tissue donors to family members or friends (90% of women and 83% of men) or to a person they do not know (75% of women and 69% of men). The respondents also accepted organ donation from their deceased relatives (90% of women and 83% of men). Women were found to have generally better knowledge and more positive attitudes towards transplantation. Respondents in the oldest age group, 50 years and over, had the best knowledge on transplantation, yet their attitudes were the most negative. The education variable influenced both the knowledge and attitudes, however the vast majority of participants had secondary and high education, with only 3 participants having primary education.

Conclusions. Actions aimed at increasing knowledge and awareness regarding transplantation should be focused on social campaigns, educational programmes and popular science programmes, which would be targeted at a wide audience and touch on issues related to donation, problems of people who await transplants or who underwent transplantation and the need to communicate one's consent or objection to organ donation. What is more, actions should be undertaken to increase the level of knowledge and empathy among the medical personnel. In particular, they should be trained to classify patients as organ donors, talk with donors' families and popularise knowledge on donation and declarations of intent. Further studies should be conducted for a more comprehensive analysis of the problem on larger samples including other determinants, such as marital status, place of residence, material status and social background. Results and conclusions of such studies might be crucial for further development of transplantation medicine and consequently lead to an increase in the number of transplantations performed in Poland.

Streszczenie

Wstęp. Transplantacja stanowi jedno z większych wyzwań współczesnej medycyny. Najczęściej przeszczepiane współcześnie narządy to nerki, wątroba i serce.

Cel pracy. Określenie wpływu uwarunkowań społecznych, takich jak płeć, wiek i wykształcenie, na wiedzę i postawy społeczeństwa polskiego wobec transplantacji.

Materiał i metody. Respondentami anonimowej ankiety internetowej było 200 osób (59 mężczyzn oraz 141 kobiet) w grupach wiekowych 18-25 lat (127 osób), 26-40 lat (44 osoby),

41-50 lat (12 osób) oraz 50 i więcej (17 osób). Jedynie 3 osoby nie posiadały wykształcenia, 87 osób posiadało wykształcenie średnie i aż 110 osób – wyższe. W badaniu wykorzystano metodę anonimowej autorskiej ankiety. Ankieta składała się z zamkniętych pytań jednokrotnego i wielokrotnego wyboru. Czas trwania badania obejmował okres od grudnia 2015 r. do marca 2016 r.

Wyniki. Analiza uzyskanych wyników badań prowadzi do wniosku, że społeczeństwo polskie prezentuje przeciętny poziom wiedzy na temat transplantacji, jednak wysoki odsetek osób wyraża chęć zostania dawcami szpiku kostnego i komórek macierzystych (38% kobiet i 24% mężczyzn), oddania narządów lub tkanek osobie bliskiej (90% kobiet i 83% mężczyzn) i obcej (75% kobiet i 69% mężczyzn), a także przekazania organów zmarłej osoby bliskiej (90% kobiet i 83%), co świadczy o pozytywnym nastawieniu do transplantacji. W szczególności, zarówno jeśli chodzi o wiedzę, jak i pozytywne postawy, dominują kobiety. Analiza wyników przeprowadzonych badań wykazała, że najstarsi respondenci z grupy wiekowej 50+ posiadali największą wiedzę w zakresie transplantacji, ale wykazali się najmniej pozytywnymi postawami wobec niej. Zmienna wykształcenia wprawdzie wpływała na wyniki badań, jednakże 200-osobowa grupa badana reprezentowana była jedynie przez osoby z wyższym i średnim wykształceniem oraz 3 osoby bez wykształcenia.

Wnioski. W działaniach mających na celu podniesienie poziomu wiedzy oraz zmianę postaw społecznych w zakresie transplantacji należałoby położyć nacisk na kampanie społeczne, programy edukacyjne i popularnonaukowe, które będą poruszały zagadnienia dotyczące dawstwa, problemów ludzi oczekujących na przeszczepy i po przeszczepach, komunikowania otoczeniu swoich poglądów dotyczących możliwości bycia dawcą narządów. Ponadto, należałoby podjąć działania zmierzające do podniesienia poziomu wiedzy i empatii personelu medycznego, w szczególności w zakresie kwalifikowania pacjentów do dawstwa i prowadzenia rozmów z rodzinami takich pacjentów, czy też popularyzowania wiedzy na temat donacji i oświadczeń woli. Koniecznym wydaje się również przeprowadzenie dalszych badań w celu pogłębienia rozpoznania problemu na szerszej próbie, poszerzonych o inne wskaźniki społeczne takie jak stan cywilny, miejsce zamieszkania, pochodzenie czy status majątkowy. Wiedza i wnioski uzyskane z takich badań mogą się okazać bardzo istotne dla dalszego rozwoju transplantologii, a w konsekwencji do wzrostu liczby wykonywanych w Polsce przeszczepień.

INTRODUCTION

Transplantation is a medical procedure which involves transplanting an entire organ, a part of an organ or particular cells from one organism to another or from one location to another within the same organism (1). Transplantation medicine is a medical field which specialises in transplantation. The organ transplanted is commonly called a graft. The most frequently transplanted organs include: bone marrow, skin, kidneys, heart, liver, pancreas, lungs, intestines, upper limb, cornea and blood vessels (2, 3). The emergence of transplantation medicine was possible due to developments in immunology, in particular the creation of immunosuppressive drugs which are necessary to prevent transplant rejection (4). The kidney was the first organ in Polish and global history to be transplanted. The first attempt to transplant this organ from a deceased person in Poland was made by Wiktor Bross in Wrocław (31/03/1965) and the first successful operation was performed ten months later in Warsaw by Jan Nielubowicz and Tadeusz Orłowski (5).

Organs for transplantation may be procured from a living or a deceased donor. For obvious reasons, not all organs may be donated by living persons. It is possible with a kidney, bone marrow and parts of liver and intestines.

After verification of the blood group and tissue type compatibility of the donor and recipient, the potential donor needs to undergo a series of medical tests, which assess whether they are medically fit. Subse-

quent tests assess if the organ to be transplanted is healthy and describe its anatomy and vascularisation. The information is vital for surgeons. Recovering organs from deceased donors is possible when they are classified as brain dead. There is a number of contraindications for deceased-donor transplants. They can be divided into absolute – neoplasms, broadly understood infections (e.g. HIV, but also bacterial infection) – and relative – age, diabetes or the use of certain medications. Relative contraindications are slightly different for every organ. Like every medical procedure, transplantation involves a number of contraindications, adverse reactions and complications. Apart from general postoperative complications, the main risk is organ rejection, leading to organ failure and recurrence of the disease, a need to remove it or – in the case of organs essential for survival – to death. To prevent transplant rejection, patients need to take immunosuppressants for the rest of their lives. Immunosuppressive medications reduce the immune response and the risk of rejection. As a consequence of lowered immunity, the patients are at a greater risk of cancer and severe infections such as pneumonia. These diseases are among the main causes of death in transplant recipients. Also, some immunosuppressants have an adverse effect on the heart and kidneys, leading to permanent damage. Nevertheless, current prognoses for such patients are improving due to modern medications and new findings in immunology and molecular genetics.

With the development of modern surgical techniques, immunology, tissue engineering and genetic engineering, it is possible that in the near future stem cells will be used to develop not only tissues but also entire organs. This will eliminate problems related to donors and organ rejection. Scientists need to face many challenges, however, before this revolution becomes a fact (6).

Despite all progress in transplantation, the number of people awaiting transplants is still high (7). Although the awareness of the need to save lives is increasing, people are still concerned about donating their organs after death. Such attitude is influenced by a number of objective and subjective factors, such as religious beliefs, cultural concepts, personal views or simply lack of sound knowledge.

Most people do not learn about the developments in medicine from health care personnel, specialist literature or educational programmes, but rely on internet forums, conversations with family and friends, television documentaries and films. Such sources often provide information which has little to do with actual state of knowledge. They make the public distrustful towards transplantation, especially towards people engaged in it. It is not infrequent to hear about illegal trade and cases of hastening or causing death in order to obtain organs. Education and raising social awareness in that respect is essential.

Initiating the transplantation procedure relies primarily on the closest family of the deceased, rather than doctors, organ recipients and the deceased donor. In the majority of cases, the family do not know about the deceased person's consent to posthumous donation or, if they do, they are guided by their own beliefs in making the final decision. It is particularly difficult when family members believe that the deceased person is "still alive". Seeing and hearing the heartbeat, breath or impulses, they find it extremely difficult to understand notions such as brain death, objection register or presumed consent. Despite the fact that the rule of presumed consent applies in Poland, in practice organ donation is abandoned if the family objects.

AIM

The aim of the study was to evaluate the impact of social determinants: age, gender and education on the knowledge and attitudes of Poles regarding transplantation. Determining such factors may help to improve awareness, create more positive attitudes towards transplantation, change the mentality, fight prejudices and in consequence raise the number of transplants performed in Poland.

MATERIAL AND METHODS

The study consisted of an anonymous online survey. The participants were 59 men and 141 women in four age groups: 18-25 (127 people), 26-40 (44 people), 41-50 (12 people) and over 50 (17 people). The majority of the respondents (110 people) had higher

education, 87 had secondary education, and 3 people reported having primary education. There were no people with vocational education in the group studied. The study used an anonymous internet survey on the internet portal www.ankietka.pl. It consisted of closed single and multiple choice questions. The survey was available between December 2015 and March 2016. It included 9 questions assessing the respondents' knowledge on transplantation and 13 questions concerning their attitudes towards transplants.

RESULTS

The respondents' answers were analysed and then presented in two tables. More than half of the participants were familiar with the terms donation (67% of women and 76% of men) and brain death (90% of women and 76% of men). Similarly, more than half of the surveyed knew that stem cells can be extracted by separating them from peripheral blood (77% of women and 54% of men). Nearly all the respondents knew that paid organ donation is forbidden in Poland (96% of women and 90% of men). Less than half of the participants knew that according to legal regulations everyone is an organ donor (38% of women and 32% of men). A similar percentage knew what Central Objection Register was (43% of women and 24% of men). The lowest number of correct answers was given to the question "How many people can be saved by a single deceased organ donor?" (28% of women and 20% of men). Another question which posed difficulties was "What is a presumed consent?" (52% of women and 48% of men) and "How many doctors sit in the commission that diagnoses brainstem death?" (52% of women and 46% of men). Women were much better informed than men as they gave more correct answers to nearly every question. Men performed better only in defining the term donation.

As regards the age criterion, the group which showed the highest awareness of transplantation were people aged 50 and over. Similar, but lower results were obtained in groups aged 41-50 and 26-40. The lowest number of correct answers was given by respondents aged 18-25. The most difficult question for each of the groups was "How many people can be saved by a single deceased organ donor?". The proportion of correct answers did not exceed 30% in any of the groups. As for the educational criterion, the participants with higher education demonstrated the best knowledge on transplantation. The scores in the group with primary education were equally high, however the group included only 3 individuals (tab. 1). Nearly all the respondents believed that organ, cell or tissue donation system is insufficiently developed in Poland (90% of women and 90% of men). The vast majority of the surveyed also believed that a doctor should extract organs from the deceased who had signed a declaration of intent despite objections raised by the person's family (93% of women and 93% of men). Similar affirmative responses were given to the questions:

“If your family member died, would you agree to their organs being extracted?” (90% of women and 83% of men) and “Would you donate organs or tissues to a family member or friend?” (90% of women and 83% of men). A large group would also agree to donate their organs or tissues to a person they do not know (75% of women and 69% of men). A high percentage of the respondents would agree to donate stem cells separated from blood (82% of women and 66% of men). A significant proportion of respondents were in favour of transgenic transplants (77% of women and 81% of men). More than half of the surveyed had informed their family about their decision regarding posthumous organ donation (72% of women and 48% of men). Less than half of the respondents had signed a declaration of intent (48% of women and 26% of men). A considerably small group declared to be honorary blood donors (23% of women and 25% of men). Similarly, a small number of the surveyed registered as bone marrow and stem cell donors (38% of women and 24% of men). Few respondents would agree to donate organs or tissues if they were offered remuneration (26% of women and 37% of men). Very few respondents believed that organ donation was in conflict with the Catholic faith (4% of women and 14% of men). A significantly higher percentage of women than men were registered as bone marrow and stem cell donors, had signed a declaration of intent and informed their family about their consent or lack of consent for posthumous organ donation. Women were also more likely to agree to donate their organs or tissues to a family member,

friend and a person they do not know, and to have organs of their deceased family member procured. On the other hand, more male respondents were honorary blood donors, supported the so-called transgenic transplants and believed that organ donation was in conflict with the Catholic faith. Men were more likely to agree to donate their organs or tissues if they were offered a financial or in-kind remuneration. Regardless of age and education nearly all respondents reported willingness to donate organs to a close family member or friend.

Among the eldest respondents, i.e. those over 50 years of age, 94% were willing to donate organs to a close family member or friend, but only 65% would be a donor for a person they do not know. 67% said they would give consent to have organs procured from their deceased family member. In the other age groups this percentage was equal or higher than 90%. The eldest respondents were the least likely to sign declaration of intent (24%) or declare their willingness to donate bone marrow or stem cells (24%). Only 53% of the surveyed in this group informed their family whether they agree to a posthumous donation of their organs. In this age group, the lowest percentage of the participants (12%) was willing to donate their organs or tissues if they were to receive a financial or in-kind remuneration and considered organ donation to be in conflict with the Catholic faith (6%). Only 2% of the respondents in the 26-40 group believed that organ, cell and tissue donation system in Poland is sufficiently developed. The other questions showed that age did not significantly affect attitudes towards transplantation.

Tab. 1. The impact of social determinants: age, gender and education on the knowledge and attitudes of Poles regarding transplantation

	Sex		Age				Education		
	Female	Male	18-25	26-40	41-50	50+	Primary	Secondary	Higher
What is donation?	Y: 67% N: 33%	Y: 76% N: 24%	Y: 73% N: 27%	Y: 61% N: 39%	Y: 58% N: 42%	Y: 76% N: 24%	Y: 100% N: 0%	Y: 64% N: 36%	Y: 74% N: 26%
What is the Central Objection Register?	Y: 43% N: 57%	Y: 24% N: 76%	Y: 31% N: 69%	Y: 39% N: 61%	Y: 75% N: 25%	Y: 59% N: 41%	Y: 33% N: 67%	Y: 29% N: 71%	Y: 45% N: 55%
Did you know that due to developments in medicine it is possible to extract stem cells necessary for treating leukaemia by separating them from blood?	Y: 77% N: 23%	Y: 54% N: 46%	Y: 71% N: 29%	Y: 80% N: 20%	Y: 42% N: 58%	Y: 65% N: 35%	Y: 67% N: 33%	Y: 70% N: 30%	Y: 71% N: 29%
What is a presumed consent?	Y: 52% N: 48%	Y: 48% N: 52%	Y: 46% N: 54%	Y: 55% N: 45%	Y: 67% N: 33%	Y: 71% N: 29%	Y: 67% N: 33%	Y: 43% N: 57%	Y: 57% N: 43%
Is everyone an organ donor according to legal regulations in Poland?	Y: 38% N: 62%	Y: 32% N: 68%	Y: 36% N: 64%	Y: 27% N: 73%	Y: 67% N: 33%	Y: 41% N: 59%	Y: 67% N: 33%	Y: 37% N: 63%	Y: 35% N: 65%
What is brainstem death, also called brain death?	Y: 90% N: 10%	Y: 76% N: 24%	Y: 84% N: 16%	Y: 89% N: 11%	Y: 83% N: 17%	Y: 88% N: 12%	Y: 67% N: 33%	Y: 83% N: 17%	Y: 88% N: 12%
How many doctors sit in the commission that diagnoses brainstem death?	Y: 52% N: 48%	Y: 46% N: 54%	Y: 47% N: 53%	Y: 61% N: 39%	Y: 33% N: 67%	Y: 53% N: 47%	Y: 33% N: 67%	Y: 46% N: 54%	Y: 54% N: 46%
How many people can be saved by a single deceased organ donor?	Y: 28% N: 72%	Y: 20% N: 80%	Y: 26% N: 74%	Y: 30% N: 70%	Y: 17% N: 83%	Y: 24% N: 76%	Y: 33% N: 67%	Y: 24% N: 76%	Y: 27% N: 73%
Is it legal in Poland to receive payment for organ or tissue donation?	Y: 4% N: 96%	Y: 10% N: 90%	Y: 7% N: 93%	Y: 5% N: 95%	Y: 0% N: 100%	Y: 6% N: 94%	Y: 0% N: 100%	Y: 5% N: 95%	Y: 7% N: 93%

Result analysis with regard to the educational variable leads to a conclusion that the most positive attitudes towards transplantation were found in the primary education group. However, as mentioned previously, it was represented by only 3 individuals. All the respondents in this group informed their family whether they agree to donate their organs after death and did not believe that donating organs was in conflict with the Catholic faith. They would also agree to have organs procured from their deceased family member and believed that a doctor should extract organs from the deceased who had signed a declaration of intent despite objections raised by the person's family.

At the same time, this group included the highest percentage of people who would agree to donate organs or tissues if they were offered financial or in-kind

remuneration. This group also included the highest proportion of honorary blood donors (67%) and people who believed that organ, cell and tissue donation system in Poland is sufficiently developed (tab. 2).

CONCLUSIONS

Analysis of the results obtained leads to the conclusion that the level of knowledge on transplantation among Poles is average. However, the results indicate general positive attitudes towards transplantation: a high number of respondents expressed their will to become bone marrow and stem cell donors or donate their organs, cells or tissues to a family member, friend or a person they do not know. Women were found to have generally better knowledge and more positive attitudes.

Tab. 2. The impact of social determinants: age, gender and education on the knowledge and attitudes of Poles regarding transplantation – continued

	Sex		Age				Education		
	Female	Male	18-25	26-40	41-50	50+	Primary	Secondary	Higher
Have you signed a declaration of intent?	Y: 48% N: 52%	Y: 26% N: 74%	Y: 44% N: 56%	Y: 43% N: 57%	Y: 33% N: 67%	Y: 24% N: 76%	Y: 33% N: 67%	Y: 39% N: 61%	T: 44% N: 56%
Are you an honorary blood donor?	Y: 23% N: 77%	Y: 25% N: 75%	Y: 28% N: 72%	Y: 20% N: 80%	Y: 8% N: 92%	Y: 12% N: 88%	Y: 67% N: 33%	Y: 25% N: 75%	Y: 22% N: 78%
Are you registered as a bone marrow and stem cell donor?	Y: 38% N: 62%	Y: 24% N: 76%	Y: 35% N: 65%	Y: 36% N: 64%	Y: 25% N: 75%	Y: 24% N: 76%	Y: 33% N: 67%	Y: 26% N: 74%	Y: 40% N: 60%
Would you decide to be a donor of stem cells being aware that they can be separated from blood?	Y: 82% N: 18%	Y: 66% N: 34%	Y: 74% N: 26%	Y: 84% N: 16%	Y: 92% N: 8%	Y: 75% N: 25%	Y: 100% N: 0%	Y: 70% N: 30%	Y: 82% N: 18%
Have you informed your family about your decision on whether you agree or object to your organs being donated after your death?	Y: 72% N: 28%	Y: 48% N: 52%	Y: 65% N: 35%	Y: 66% N: 34%	Y: 75% N: 25%	Y: 53% N: 47%	Y: 100% N: 0%	Y: 61% N: 39%	Y: 66% N: 34%
Do you believe that a doctor should extract organs from a deceased person who had signed a declaration of intent despite objections raised by the person's family?	Y: 93% N: 7%	Y: 93% N: 7%	Y: 97% N: 3%	Y: 91% N: 9%	Y: 83% N: 17%	Y: 77% N: 23%	Y: 100% N: 0%	Y: 93% N: 7%	Y: 93% N: 7%
Do you think that organ, cell and tissue donation system in Poland is sufficiently developed?	Y: 10% N: 90%	Y: 10% N: 90%	Y: 13% N: 87%	Y: 2% N: 98%	Y: 8% N: 92%	Y: 6% N: 94%	Y: 33% N: 67%	Y: 13% N: 87%	Y: 7% N: 93%
Are you in favour of the so-called transgenic transplants?	Y: 77% N: 23%	Y: 81% N: 19%	Y: 82% N: 18%	Y: 68% N: 32%	Y: 92% N: 8%	Y: 71% N: 29%	YT: 67% N: 33%	Y: 77% N: 23%	Y: 80% N: 20%
Do you believe that organ donation is in conflict with the Catholic faith?	Y: 4% N: 96%	Y: 14% N: 86%	Y: 8% N: 92%	Y: 7% N: 93%	Y: 8% N: 92%	Y: 6% N: 94%	Y: 0% N: 100%	Y: 10% N: 90%	Y: 5% N: 95%
If your family member died, would you agree to their organs being extracted?	Y: 90% N: 10%	Y: 83% N: 17%	Y: 90% N: 10%	Y: 91% N: 9%	Y: 92% N: 8%	Y: 67% N: 33%	Y: 100% N: 0%	Y: 88% N: 12%	Y: 88% N: 12%
Would you agree to donate organs or tissues if you were offered a financial or in-kind remuneration?	Y: 26% N: 74%	Y: 37% N: 63%	Y: 30% N: 70%	Y: 34% N: 66%	Y: 33% N: 67%	Y: 12% N: 88%	Y: 33% N: 67%	Y: 32% N: 68%	Y: 27% N: 73%
Would you donate organs or tissues to a person you do not know?	Y: 75% N: 25%	Y: 69% N: 31%	Y: 72% N: 28%	Y: 75% N: 25%	Y: 92% N: 8%	Y: 65% N: 35%	Y: 67% N: 33%	Y: 70% N: 30%	Y: 76% N: 24%
Would you donate organs or tissues to a family member or friend?	Y: 90% N: 10%	Y: 83% N: 17%	Y: 100% N: 0%	Y: 100% N: 0%	Y: 100% N: 0%	Y: 94% N: 6%	Y: 100% N: 0%	Y: 100% N: 0%	Y: 99% N: 1%

The results were undoubtedly influenced by respondents' lack of sound, specialist knowledge on donation and little familiarity with the subject. Actions aimed at increasing knowledge and awareness regarding transplantation should be focused on social campaigns, educational programmes and popular science programmes (television, internet, radio, press, schools and others). They should be targeted at a wide audience and touch on issues related to donation, the brain death criterion, problems of people who await or received transplants and the need to communicate one's consent or objection to organ donation to the family, which would eliminate doubts in many difficult cases. The latter issue is especially important in view of the fact that most people declare their willingness to become organ donors. What is more, a number of actions should be undertaken to increase the level of knowledge and empathy among the medical personnel. In particular, they should be trained

to classify patients as organ donors, talk with donors' families and popularise knowledge on donation and declarations of intent. Such actions would undoubtedly help to develop trust towards health care professionals and strengthen the belief that medical personnel fights for every life solely for the benefit of the patient, not in order to obtain organs, and that a deceased patient will not be mistakenly identified as brain dead. Further studies should be conducted for a more comprehensive analysis of the problem. Research conducted thus far suggests that the correlations pointed out in the aim of this study may be confirmed in the course of further research on larger samples including other determinants, such as marital status, place of residence, material status and social background. Results and conclusions of such studies might be crucial for further development of transplantation medicine and consequently lead to an increase in the number of transplantations performed in Poland.

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