Patient Involvement in the Transfusion Decision-Making Can Change Patient Blood Management Practice for Better or Worse

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Abstract
Background: Red blood cell transfusion (RBCT) is a therapeutic procedure with important and undesirable secondary effects. Inappropriate overuse of RBCT is significant, and a significant percentage of physicians prescribe RBCT unnecessarily. Patient involvement in treatment decision-making is poor worldwide. Shared (with the patient) transfusion decision-making (TrDM) can temper a “quick finger on the trigger” of blood transfusion (BT). The objective of this study was to determine patients’ preferences surrounding their involvement in the TrDM process as well as physicians’ willingness to involve the patient in TrDM. The study also determined the role of patient age, gender, ethnicity, and schooling years in the TrDM process. Methods: This cross-sectional study was conducted in a variety of departments, with 123 patients over 18 years old, who received a BT for the first time. The patients completed an anonymous questionnaire which included demographic characteristics (age, gender, ethnicity, and schooling years) and 2 questions linked to potential willingness to participate in the decision to transfuse. Results: The questionnaire response rate was 100%. The data showed that 60% of patients (especially younger patients), independent of ethnicity, preferred a passive role in TrDM and 40% preferred to share the decision. Conclusions: The majority of patients, especially younger patients, prefer a passive role in TrDM, possibly due to insufficient information about the need for BT and its significance. We feel that active involvement on the part of the patient can provoke a more judicious thought process about the real need of BT on the part of the physician and have a positive influence on patient blood management.

“No decision about me, without me”
Department of Health in the UK, 2012

Background
Several studies have shown that patient involvement (PI) in medical treatment decision-making (TDM) is low worldwide [1, 2]. TDM models range from paternalistic...
decision-making (PDM) to informed decision-making (IDM), and between the 2 extremes lies the shared decision-making (SDM) option [3].

PDM results in passive involvement of the patient, who leaves the decision to the physician. The concept of SDM, which first appeared in the literature in the 1990s, is based on sharing and negotiation toward decision-making. SDM involves both the physician and patient, so that both are responsible for the final decision. In contrast, the PDM model is an autocratic style of decision-making, where physicians make health-care decisions based on what they feel are the best interests of the patient. In the case of IDM, only the patient makes the final decision related to her/his own health care, after receiving the required information [4]. There is increasing emphasis on PI in TDM, and PI may have an important impact on treatment adherence [5]. There are different approaches worldwide to PI in TDM. In one European study, for example, 51% of patients preferred SDM, 26% PDM, and only 23% preferred IDM in TDM [6].

SDM is thought to be the most logical method of TDM and is recommended by multiple medical organizations. However, at least 1 study suggests that patients do not necessarily prefer to be involved in SDM, and 52% of patients preferred to leave the final decision to their physicians (PDM) [7].

Knowledge and awareness among both professionals and patients as well as tools and training skills are needed for SDM to become widely implemented [8]. SDM leads to better professional-patient relationship, as well as improved outcomes [8].

Not all patients wish to be involved in the processes of TDM [9]. It is not clear if this position is linked to patient personality, age, gender, level of education, or ethnicity. In Japan, for example, 1 study showed that the majority of patients and particularly older patients are passive toward TDM [10]. However, in another study, also from Japan, the majority of patients preferred to share the treatment decision [11].

Blood transfusion (BT) is a therapeutic procedure. The Joint Commission along with the American Medical Association has included BT in a list of the 5 most overused therapeutic procedures in the USA [12], where 15 million blood units are given per annum (1 unit every 0.5 s). Therefore, BT has been declared one of the 5 targets for improvement. In the USA, BTs are the most frequently performed hospital procedure, and approximately 12% of hospitalized patients receive transfusion. Moreover, the rate of in-hospital transfusions is increasing continuously.

A number of nonnegligible trials have supported the strategy of restrictive blood transfusion versus the liberal strategy, translated in levels of BT trigger and patient outcome [13, 14]. Nevertheless, the policy of patient blood management (PBM) is very difficult to implement.

In our previous publications, we have suggested the lack of knowledge among physicians [15] as a possible reason for RBCT overuse. Ethnicity and cultural background were found to have a role in physicians’ PBM practice for better or worse [16]. Growing evidence suggests that a significant percentage of BTs are inappropriate, placing patients at significant risk and accruing unnecessary costs. Our study intended to evaluate the patient’s wish to be involved in transfusion decision-making (TrDM).

Patients from the community of Jehovah’s Witnesses are nearly unique in preferring IDM, as they believe that allogeneic BT is prohibited by the Bible. The majority of BT recipients are divided between PDM and SDM. PI in TrDM may force the physician to rethink the real necessity of BT.

The primary objective of our study was to determine patients’ preferences and their involvement in the TrDM process, along with the physician willingness to share the TrDM with the patient. Secondary objectives were to determine the role of ethnicity (with its specific cultural background), age, gender, and education level in choosing a degree of involvement in TrDM.

**Methods**

This cross-sectional observational study was performed in a 728-bed tertiary care teaching hospital, in Israel. Study participants were 123 consecutive patients, all after their first BT, who fulfilled inclusion criteria.

The inclusion criteria were age over 18 years, without a superior age limit, first BT (ever), and signed informed consent to participate in the study. The exclusion criteria were patients younger than 18 years old and those patients considered by the principal investigator as unable to manage the questionnaire or understand the option of involvement in TrDM (due to their cognitive status or physical condition; only 6 patients were found unable).

The hospitalized patients were recruited from surgical, orthopedic, obstetric and gynecologic, and internal medicine departments. Elective transfusion recipients from the outpatient clinics were not recruited. The decision to transfuse is taken by the treating physician. The threshold to transfuse in our medical center is 7 g Hb/dL (according to the restrictive transfusion policy) in the absence of cardiovascular problems. We commonly begin with 1 PRBC and if necessary, additional PRBCs are added.

The survey was carried out during a 3-month period, between October 1, 2020, and December 31, 2020. An anonymous questionnaire with 2 questions, in Hebrew or in Arabic was offered to
the patients. Data of ethnicity (Arab or Jew), age, gender, and schooling years were evaluated as independent variables. The questionnaire, designed and formulated by the investigating team and validated by the Blood Bank director, was used to gather information on the patient’s approach to TrDM. The medical center’s institutional review board (IRB) approved this study.

Results

The mean age of recruited patients was 67.6 years (range 18–101 years), and the majority of patients were above 65 years old (76 patients, 62%). There were no significant differences in patient gender (51% = 62 males and 49% = 60 females). The proportion between Jews and Arabs was 1.46:1.0 (59% = 73 Jews and 41% = 50 Arabs).

Of 123 patients, 67% (82 patients) were involved in TrDM and 33% (41 patients) were not. There was no difference between Jewish and Arab patients with respect to TrDM involvement. No statistically significant differences were found in TrDM between Jewish and Arab females (68 vs. 64%) or males (66% vs. 51%). There was a physician tendency (not statistically significant) to involve younger patients in TrDM: 84.6% in the 18- to 40-year-old group compared to 55.9% in the 41- to 65-year-old group and 68.4% in the over 65-year-old group. Forty-nine of all patients (40%), independent of ethnicity, declared their interest to be involved in TrDM and preferred to share the decision. Twenty of these (40.8%) had been in the TrDM noninvolved group. Although the patient tendency to be involved in TrDM was previously observed mainly in older patients, in this study, 42% of older patients did not show any interest in being involved.

This study also examined the relationship between TrDM and schooling years. There was a nonsignificant increase in TrDM involvement in patients with >12 schooling years (72.9% vs. only 62.5% in patients with <12 years of schooling).

Regarding patient interest in TrDM, schooling years had no significant effect. It is important to emphasize that there were no differences between Jews and Arabs regarding this issue.

Discussion

In this study, we examined the physicians’ and patients’ attitude toward TrDM and how TrDM is applied in daily practice. We did not find specific studies of TrDM in the glut of published literature on the topic of TDM. There is no doubt that TrDM is a part of TDM, and the question is whether the attitude toward blood will change the attitude toward TrDM, since the attitude toward blood is different, mainly in different cultural backgrounds. The American Association of Blood Banks (AABB) established guidelines, although their role is to release a suitable blood unit for transfusion and not to judge whether or not the request for blood is appropriate. This concept disturbs a justified PRBC BT. We feel that involvement or noninvolvement of the patients in TrDM can influence the physician’s decision, at least to a certain extent, in prescribing a BT.

PI in TDM (including TrDM) is an important feature of quality health care. The medical system should be concerned about PI in TrDM and offer the possibility to choose between various options; however, the extent to which patients understand the issue and can take proper decisions is often unclear. This study suggests both favorable and nonfavorable aspects of patients’ experiences.

As for the finding that physicians involved only 67% of patients in TrDM, we theorize that physicians who did not involve their patients wanted to impose PDM. Another possibility is that the physician underestimated the patient’s willingness or preference to be involved in TrDM. In our opinion, patients who wanted to be involved needed to proactively specify this to their physician, but this aspect was not studied.

There is a common belief in the medical literature that the patient prefers a paternalistic relationship with the physician, particularly older patients. We may assume that the paternalistic model reflects the patient’s complete confidence in the physician’s decision and/or a lack of confidence in their own judgment on the relevant medical issue. According to our findings, this supposition is not necessarily true.

Preference to participate in TDM increases with educational level in the Western world. The medical literature suggests that SDM is the desirable model for PI in TDM [17].

Conclusions

There are no differences between physicians’ and patients’ position toward TrDM when considering the variables of ethnicity, years of schooling, age, or gender. Continuous education of physicians to involve their patients in TrDM is necessary, as it is uncertain that the patient will actively request to share the TrDM. We feel that active involvement of patients in TrDM would in-
increase the number of questions regarding the risks and benefits of the procedure and may provoke a physician’s reconsideration of the actual necessity of BT. PI in TrDM, that is, SDM, or noninvolvement of the patient in TrDM, that is, acceptance of PDM, can influence the physician’s decision to prescribe a BT and can change PBM practice for better or worse. Despite the specific cultural setting, our results may be generalizable since they are comparable to other PDM studies from different patient settings.

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**Statement of Ethics**

This study was approved by the IRB of Galilee Medical Center, Nahariya, Israel. An informed consent form was obtained from the recruited patients. The research complies with the guidelines for human studies and was conducted ethically in accordance with the World Medical Association Declaration of Helsinki.

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**Conflict of Interest Statement**

The authors have no conflicts of interest to declare.

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**Author Contributions**

The study was designed by A.B. who also composed the questionnaire, participated in data analysis, and reviewed the manuscript. E.S. participated in study design and wrote the manuscript. O.M. assisted with participant recruitment and reviewed the manuscript draft. L.A. assisted in composing the questionnaire and added statistical analysis. L.S. helped in data analysis. M.B. participated in study design and reviewed the manuscript. All authors read and approved the final manuscript.

**Data Availability Statement**

Datasets on which the conclusions of the study rely are available upon reasonable request, please contact Liron Shelev at lirons@gmc.gov.il.