Undergraduate Nursing Students' Knowledge and Perceptions of Renal Transplants

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Abstract

Renal transplantation is viewed as the ideal form of renal replacement therapy for end stage renal disease. The nursing role is pivotal in the transplant process, enhancing the quality and longevity of life for transplant beneficiaries, through advocacy, direct patient care and education. However, nurses' knowledge, skills, attitudes and behaviors in relation to organ donation, allocation and transplantation have been fundamentally overlooked. Little evidence supports the current curriculum in preparing nurses for their vital role in the transplantation process. As future health care providers, nursing students' opinions and knowledge regarding the process are vitally important in order to ensure the ability to fulfill professional responsibilities. This study seeks to examine undergraduate nursing students' knowledge and perceptions of the renal transplantation process in relation to the content taught in U.S. undergraduate nursing programs. The survey encompassed eighty traditional undergraduate nursing students studying at The Ohio State University, including seventy-four females and six males. Of the participants, twenty-four were sophomores, twenty-five were juniors and thirty-one were seniors. Participant ages varied, with twenty-six students between the ages of 18-20, forty-six between 21-30, seven between 31-40 and one fifty-one and over. The study encompassed a single-group descriptive cross-sectional design. An investigator-designed survey containing 25 dichotomous items was used. The survey questions were selected from three previously implemented studies, including Trompeta et al., 2010, Rubens 1994, and Arriola et al., 2008. The survey was delivered electronically via the Checkbox survey site. Chi-square was used to analyze data with program level serving as the grouping variable. Of the 25 questions, four were shown to be statistically significant. Findings from this study can help inform nursing curriculum needs related to renal donation, allocation and transplantation.

Introduction

Despite improvements made in other treatments for end stage renal disease, renal transplantation remains the favorable option for those dependent upon life-sustaining treatment including hemodialysis and peritoneal dialysis. Renal transplants offer beneficiaries improved quality and longevity of life and the treatment is cost effective. However, despite efforts to increase renal donation, globally the demand for the precious organs far exceeds the supply (McPake, 2009). The inequities between organ procurement and transplantation must be minimized in order to increase the number of transplant beneficiaries. In addition, potential transplant recipients must be presented with unbiased knowledge of the process, including a lifetime commitment to rigorous medication regimens post transplantation (McPake, 2009). As future healthcare providers, nursing students need to be educated with not only the knowledge of the transplant process, but also of the methods used for organ allocation and donation. The current nursing curriculum in the United States has no formal instruction regarding organ allocation, donation and transplantation (Kiberd, 1998).

Review of Literature

Renal transplantation is the favorable alternative to any other form of renal replacement therapy for those with end-stage renal disease (McPake, 2009). In the United States, more than 100,000 patients are diagnosed and treated for end-stage renal disease. Renal dialysis is routinely utilized to prolong the life of those patients whose renal system is no longer functioning properly. However, despite improvements made in both peritoneal and hemodialysis, survival rates post renal transplantation continue to surpass that of any other treatment currently available (Eggers, 1990; Evans, Manninon, Garrison, et al., 1985). Renal

transplantation awards individuals an improved quality of life free from dialysis and in as little as two years after a renal transplantation, a 34% cost savings emerges compared to alternative treatments (McPake, 2009). However, despite the significant advantages that renal transplantation offers, the process does not come without challenges.

One of the most problematic issues surrounding the transplantation process is organ donation and allocation. Organs for transplant are precious resources and continue to be scarce regardless of efforts to increase donation rates (McPake, 2009). According to the National Kidney Foundation, only 16,523 renal transplants were performed in the United States in 2008 while 90,291 residents on the waiting list awaiting an available renal transplant in the United States (National Kidney Foundation, 2011). Gortemaker et al., suggests the low donation rates could be a result of the lack of information presented to families due to the sensitive subject matter, unclear wishes of the patient, or families refusal to donate a loved one's organs (Gortemaker et al., 1996).

Another challenge to patients, care providers, and healthcare professionals is the demanding medication regimen post transplantation. One of the largest concerns includes concordance with the prescribed immunosuppressant medication regimen. Both transplantation graft survival and patient longevity depend upon on the commitment to the prescribed immunosuppressant medication regimen for the lifetime of the graft. However, between 5-43% of graft recipients fail to follow the prescribed regimen, resulting in a 16% prevalence of graft loss. The unwanted side effects of the immunosuppressive medications alone result in an overall 64% noncompliance rate (McPake, 2009). Side effects of the medications include tremors, weight gain, acne, increased body and facial hair, nephrotoxicity, dyslipidemia, hypertension and diabetes (Kory, 1999). To reduce the side effects, prophylactic medications are prescribed

immediately following the transplant, increasing the complexity of the medication regimen (McPake, 2009). The additional medications heavily contribute to the patients' noncompliance. Studies suggest that only 20% of patients are concordant if required to take medications four times per day, while 70% are concordant if only taking one medication daily (Kruse et al., 1991).

In addition, a multidisciplinary health care team is needed in order for an organ transplant to be successful. The success of an organ transplant is not only necessary for the individual, but also for the health care economy as a whole (McPake, 2009). Nurses play a pivotal role in the transplant process through education, advocacy and support, ultimately improving compliance and enhancing quality and longevity of life for transplant recipients (Cebeci, Sucu & Karazeybek, 2011). Nurses have an obligation to educate patients, the patients' family and the general public (Rios, Cascales, Martinez, et al., 2007). Nurses must provide comprehensive, realistic and consistent information. Recipients of donated organs must be educated about the complexity of the lifetime commitment to a particular medication regimen and the unwanted side effects associated with the necessary medications. Those nurses working closely with transplant recipients will monitor the patient for unwanted side effects, and will titrate therapeutic immunosuppressive drug levels. In addition, nurses must advocate for patients if an alternative medication is a more therapeutic option than their current regimen. The therapeutic relationship nurses build with patients and the patient's family is essential. In working closely with the patient an open communication line forms, often resulting in patients confiding in nurses when feeling overwhelmed by the medication regimen or if doses have been missed. Nurses reassure patients that such feelings are justified while providing assistive tools to aid them in overcoming their fears and concerns regarding the process (McPake, 2009).

In order to decrease the disparity of the number of organs available for transplant, nurses must be educated about the process and the barriers to donation (Cebeci, Sucu & Karazeybek, 2011). The public must also be made aware of the disparities and the process of transplantation in order to increase social sensitivity (Whisenant D.P., 2007). As future health care providers, nursing students' opinions and knowledge regarding the process are vitally important in order to fulfill their professional responsibilities (Cebeci, Sucu & Karazeybek, 2011). However, nurses' knowledge, skills, attitudes and behaviors in relation to organ donation and transplantation have been fundamentally overlooked (Eggers, 1990; Evans, Manninon, Garrison, et al., 1985). According to a number of studies, nurses with the greatest amount of knowledge of the process are better able to provide comfort and support to the donor family (Bidigare & Oermann, 1991; Matten et al., 1991). In addition, nurses who are aware of the benefits of transplantation are more likely to be committed to donation (Kiberd & Kiberd, 1992).

The majority of nursing curriculums have no formal instruction regarding organ donation or transplantation and there are no required courses after graduation on the subject (Kiberd, 1998). Much prejudice surrounds the renal donation, allocation and transplantation process as much fear and uncertainty surrounds the subject. In order to effectively educate the public regarding the process, nurses need specific knowledge and technical skills. In addition, cultural, social, ideological and religious factors play a major role in donation refusals. In order to modify behaviors and attitudes regarding the subject, public health education is fundamental (Lopez-Montesinos, et al., 2010). The current nursing curriculum in the United States has not been examined in how well it prepares nurses for their vital role in the renal donation and transplantation process (Kiberd, 1998).

Methods

Purpose

This study seeks to examine undergraduate nursing students' knowledge and perceptions of the renal transplantation process in relation to the content taught in U.S. undergraduate nursing programs.

Design

This was a single-group descriptive cross-sectional design using an online survey.

Sample

The sample utilized in the study included traditional undergraduate nursing students enrolled in the Ohio State University College of Nursing with representation from all 3 course levels including sophomores (1st year), juniors (2nd year), seniors (3rd year) students. A total of 80 baccalaureate students participated. See Table 1 for demographic characteristics.

Table 1: Demographic characteristics of the sample

Demographics		
Gender	Males Females	6 (8%) 74 (74%)
Course Level	Sophomores Juniors Seniors	24 (30%) 25 (32%) 31 (38%)
Age (years)	18-20 21-30 31-40 41-50 $\geq$ 51	26 46 7 0 1

Instrumentation

This study used an investigator-designed electronic survey delivered through the Checkbox survey site. This service was selected as the system provides the required data-protection mechanisms. The survey consisted of demographic information (age, program level, and gender) and 25 dichotomous questions selected from three previously implemented studies, including Trompeta et al., 2010, Rubens 1994, and Arriola et al., 2008. Ten of the selected questions were classified as value questions while the remainder of the questions considered a scientific knowledge base.

Procedures

Students were invited via email to participate in the study. Once the sample at each level was reached, enrollment was closed.

Statistical analysis

The data was collected from the survey site and imported into SPSS 18.0 (SPSS, Chicago, IL). The data was evaluated for completeness. Analysis was conducted using Chi-Square statistical measurements via ordinal rating level of program. Significant statistics were noted at a p value of <0.05. Descriptive statistics were generated for the data. Exploratory analysis was conducted to determine if there were differences between levels in relation to the process of renal donation, allocation and transplantation.

Results

Significant group differences were noted in four of the twenty-five dichotomous questions. Post hoc analysis revealed that first year students were found to report less knowledge of the causes for requiring a renal transplant than second year students and third year students. In addition, more third year students knew of someone who had some type of organ or tissue transplant and/or someone who died while waiting for a transplant compared to second and third

year students. Table 2 provides the four statistically significant questions with the associated *p* values.

Table 2: Significant Questions

Question	P value	DF	Responses
High blood pressure and diabetes are common causes for people to require a kidney for transplant.	0.006	2	100%
I know someone who has received an organ or tissue transplant.	0.000	2	100%
Do you know someone who has received an organ or tissue transplant?	0.009	2	100%
Do you know someone who died waiting for a transplant?	0.039	2	100%

Discussion

After reviewing the data and evaluating for completeness and significance, the results were reviewed to draw conclusions. Of those questions that were statistically significant, responses were complete at 100% each. The data of this study are descriptive in nature and are evidence of the need for further research.

One of the statistically significant questions revealed discrepancies in the knowledge base between the grade levels. The least amount of knowledge surrounding the scientific, pathological causes in regards to the need for a renal transplant were reported by first year students. Following first year students, second year students reported having less knowledge than third year students, with the senior most students having the greatest knowledge base. This difference would be expected, based on the current nursing curriculum implemented in undergraduate nursing schools in the United States.

Of the four dichotomous questions that showed statistical significance, three were based on experience. Third year students reported having known someone who either had some type of

organ transplant or died while awaiting a transplant more than both first and second year students. Researchers postulate the differences noted in grade levels in awareness of someone receiving and/or dieing while awaiting transplant as a result of clinical experiences.

It is recommended that more studies are conducted to determine the most efficacious methodology for teaching nursing management of the organ transplant patient.

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