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Evaluation of a Standardized Pre-Donor Management Clinical Practice Guideline

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Introduction/Background:

Transplantation has become the standard treatment for many patients with end-stage organ failure; however, lack of viable organs for transplantation globally results in an increased number of deaths among patients each year while waiting on an organ transplant (United Network for Organ Sharing (UNOS), 2017). Organs from a single deceased donor have the potential to save the lives of eight individuals waiting on transplant and may significantly transform or improve the lives of an additional 50 individuals needing tissue and corneas (UNOS, 2017). The shortage of viable organs for transplantation stems from a variety of reasons, including insufficient registered organ donors, inability to obtain consent for donation from next of kin, medical unsuitability of donors, and lack of organ viability (Razdan, et al., 2015, Roels, Smitts, & Cohen, 2012; Sheehy, et al., 2013;). At present, more than 50% of U.S. healthcare dollars are spent treating conditions related to organ failure or tissue loss (Cohen & Yu, 2012; Mendeloff, et al., 2004). Spain currently leads the world in organ donation and reports approximately 33 donors per million population (De la Rosa, et al, 2012; Rudge, Matesanz, Delmonico, & Chapman, 2012). Comparatively, the U.S., ranked fourth-highest in organ donation, reports 26 donors per million population (UNOS, 2017).

Global evidence suggests that care of the potential organ donor patient during the pre-donation period is most critical (Malinoski, et al., 2011; Malinoski, et al., 2013). Pre-donor management, especially achievement of specific clinical donor-management goals (DMGs) influences the number of organs per donor that are viable for transplantation and the long-term function of the transplanted organ(s) (Malinoski, et al., 2011; Malinoski, et al., 2013). Use of standardized pre-donor management guidelines decreases the waste and error associated with provider-dependent management, decreases the time from referral to donation in potential donors, and increases the number of organs transplanted per donor (Abuanzeh, et al., 2014; Collins, 2012; Gordon & McKinlay, 2012; Malinoski, et al., 2013; Rosendale, et al., 2002; Salim, et al., 2005; Singbartl, et al., 2011).

Methods:

Subjects included all patients referred for potential organ donation in the surgical/trauma intensive care unit (STICU) at a tertiary academic hospital during a 4-year period (2013-2017). Retrospective data was collected for the 22-month period prior to implementation of a three-part nurse practitioner-driven clinical practice guideline (CPG) and was compared to the 22-month period following implementation of the guideline. The clinical practice guideline consisted of: early referral to the organ procurement organization, use of a specific catastrophic brain injury DMG protocol and use of a hormone replacement protocol. The primary outcome was to increase the number of organs transplanted per donor and the secondary outcome was to reduce the time from referral to the organ procurement organization until organ recovery. Comparisons between the pre- and post-implementation groups were analyzed using descriptive statistics for demographic data and nonparametric statistics for primary and secondary outcomes.

Results:

A total of 66 donors were managed and referred in the STICU within the data collection period. The pre-implementation group contained 32 subjects and the post-implementation group contained 34 subjects. The mean age of the pre- and the post-implementation groups were 35 and 34 years, respectively, and the majority of patients were Hispanic/Latino and male. The predominant cause of death in both groups was head trauma.

The primary outcome measurement, the number of organs transplanted per donor, increased from 3 organs per donor to 4 organs per donor on average, while the secondary outcome, time from referral to donation, decreased from 2 days to 1 day on average during the period following implementation.

Among demographic variables, an increase in patient age was significantly associated with a decrease of the number of organs transplanted per donor ($p < 0.001$). After adjusting for patients' age, there was a 2.7-fold increase in odds of getting one more transplanted organ per donor during the post-implementation compared to the pre-implementation period (odds ratio = 2.7; 95% confidence interval = 1.1 to 6.5; $p = 0.030$). For the secondary outcome, time from referral to donation, none of the demographic variables were significantly associated with it, and hence were not included in the final analysis. The odds of delaying one more day to donation decreased by 70% during the post-implementation compared to the pre-implementation period (odds ratio = 0.3; 95% confidence interval = 0.1 to 0.7; $p = 0.006$).

Conclusion:

There can be a significant increase in number of organs transplanted per donor and a significant decrease in time from referral to donation with the use of a nurse practitioner-driven pre-donor management CPG. Advanced practice nurses (APNs) are integral in implementing evidence-based practice guidelines in the intensive care unit.

Implications for Nursing:

Further global collaboration is necessary to improve the management of potential organ donors and develop additional practice guidelines to save more lives through organ donation. Several studies (Landsperger, et al., 2016; Scherzer, et al., 2017) show intensive care units (ICUs) managed by APNs have the same outcomes as ICUs managed by physicians. Developing clinical practice guidelines is within the scope of practice for APNs. Additionally, evidence suggests the use of APNs in inpatient units increases revenue, reduces length of stay, and improves quality of care delivered (Kapu, Kleinpell, & Pilon, 2014). As leaders within the hospital, APNs are ideal change agents for the development and implementation of clinical practice guidelines and quality initiatives across the world.

Title:

Evaluation of a Standardized Pre-Donor Management Clinical Practice Guideline

Keywords:

Advanced Practice Nurse, Evidence-based practice in the ICU and Organ donation

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Abstract Summary:

Participants will gain an understanding of the current research surrounding the management of potential organ donors and collaborative strategies for increasing the number of organs available for transplant worldwide, including development and use of Nurse Practitioner-driven clinical practice guidelines.

Content Outline:

Content Outline

1. Introduction
2. Understanding of current state of organ donation locally and globally, problem statement
3. Background, significance

1. Body
2. Main Point #1: Pre-donor management guidelines are effective

1. Supporting point #1: Evidence from around the world
2. a) Spain/European donor management policies
3. b) Successful US donor management policies

2. Supporting point #2: Case Study/BUMC data

1. Main Point #2 Pre-donor management guidelines reduce waste, error, and cost

1. Supporting point #1
2. a) Evidence supporting cost, waste, and error reduction globally
3. b) Evidence from other industries

1. Supporting point #2
2. a) BUMC case data

1. Main Point #3: Nurse Practitioners/Advanced Practice Nurses are effective the ICU

1. Supporting point #1
2. a) Evidence from research

2. Supporting point #2
3. a) BUMC case study, successful CPGs

III. Conclusion

1. Use of pre-donor management guidelines can increase potential donor survival to donation and number of organs transplanted per donor, ultimately saving more lives.
2. Nurse Practitioners/Advanced Practice Nurses can be successful educators and implementers of evidence-based practice guidelines in the intensive care unit.

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