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ISSUE THREE

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CANNT JOURNAL JOURNAL ACITN



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Hello!

Nephrology is such a diverse specialty. For those who have just studied for and written the certification exam, and for those who have been working in nephrology for years, you have an appreciation for the stages of chronic kidney disease (CKD), modality options, the progression of CKD, the complexity of medication and diet management, and the integral role of the multidisciplinary team, that includes the patient. You also have an understanding of CKD throughout the lifespan continuum, evidence-based care, national and international guidelines, and the importance of conducting research and other scholarly work to advance our practice, and the care delivered to patients with CKD, and their families and caregivers.

In this issue, we are very pleased to bring you a glimpse of this diversity through several interesting articles. From transplant to advanced care directives, to the use of warfarin® and psychonephrology, we are positive there is something interesting for all of our nephrology colleagues. We always welcome submissions about anything related to nephrology that will help advance our practice and the quality of life of patients and families. Authors can be seasoned veterans, or budding enthusiasts, and topics can be as diverse as the specialty of nephrology. We also welcome feedback related to any articles submitted as a 'letter to the editor' to which we will be happy to respond. We hope you enjoy this issue and find something that you are able to apply to advance your practice.

PLEASE SEND ALL SUBMISSIONS, QUESTIONS OR COMMENTS TO:

Jovina Bachynski and Matt Phillips, Co-Editors, CANNT Journal, email: Jovina Bachynski: **CANNT.journal1@gmail.com** Matt Phillips: **CANNT.journal2@gmail.com**

Bonjour!

La néphrologie est une spécialité bien diversifiée. Que vous veniez d'obtenir votre certification ou que vous travailliez dans le domaine depuis des années, les stades de la néphropathie chronique n'ont plus de secret pour vous et vous êtes en mesure de comprendre les options thérapeutiques, l'évolution de la maladie, la complexité de la gestion du traitement et du régime alimentaire et le rôle déterminant de l'équipe multidisciplinaire, dont le patient fait partie intégrante. Vous pouvez également vous représenter l'évolution de la néphropathie chronique à l'échelle d'une vie, vous savez aborder cette maladie à travers les soins probants et les lignes directrices nationales et internationales, et vous saisissez la portée de la recherche et autres travaux scientifiques visant à faire progresser notre pratique de même que l'importance des soins prodigués aux patients atteints de cette maladie, sans oublier leurs familles et leurs soignants.

Dans ce numéro, nous sommes très heureux de vous offrir plusieurs

articles intéressants à l'image de cette spécialité diversifiée. De la transplantation aux directives sur la planification préalable des soins, en passant par le recours à la warfarine et à la psychonéphrologie, nous sommes persuadés que chacun de nos collègues évoluant en néphrologie y trouvera son compte. Comme toujours, nous accueillons avec joie les propositions d'articles liés à la néphrologie, cette spécialité permettant de traiter un vaste éventail de sujets. Que vous soyez un écrivain en herbe ou un auteur aguerri, tout article dont le propos permet d'améliorer notre pratique et la qualité de vie des patients et de leurs familles est le bienvenu. De plus, nous vous encourageons à nous faire parvenir vos commentaires sur les articles publiés grâce à une « tribune libre »; nous nous ferons un plaisir de répondre à vos lettres. Nous espérons que vous apprécierez ce numéro et que vous y trouverez de nouveaux outils qui vous permettront de perfectionner votre pratique.

Le Journal ACITN est la publication officielle de l'Association canadienne des infirmiers/ infirmières et technologues en néphrologie, a/s P.O. Box 10, 59 Millmanor Place, Delaware, ON NOL 1E0, téléphone : (519) 652-6767, télécopieur : (519) 652-5015, Courriel : cannt@cannt.ca. Publié quatre fois par année, ce journal est envoyé à tous les membres de l'Association. L'abonnement annuel est: Canada, 80\$ (+TVH), E.-U., 90\$, hors du Canada et E.-U., 115 \$. Les publications antérieures, lorsque disponsibles, coûtent 7,50 \$ (+TVH) chacune. Les opinions émises par les auteurs dans ce journal ne sont pas nécessairement partagées par l'Association ni par le corédactrices en chef. Nous invitons les lecteurs à nous faire part de leurs opinions. Toute correspondance devra être envoyée à l'ACITN, P.O. Box 10, 59 Millmanor Place, Delaware, ON NOL 1EO.

1-877-720-2819; Site web: www.cannt.ca

Le Journal ACITN accepte des articles (manuscrits) de façon continue.

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Matt Phillips, RN, BScN, MHS (P) Work: (902) 473-3518 CANNT.journal2@gmail.com I am thrilled to announce that 198 nurses across Canada achieved their initial nephrology certification or recertification status this year through the Canadian Nurses Association (CNA). From this total, 106 nurses received their initial certification and another 92 nurses met the recertification criteria. To date, there are approximately 1,100 nephrology certified nurses in Canada! Bravo to all of the nurses who wrote the nephrology exam this year!

As the only national certification program for nurses in Canada, the CNA certification exam is an opportunity for RNs to confirm they have demonstrated competence in their nursing specialty at a national level by having met pre-determined standardized criteria of that specialty. Considering the complexity of care required to care for patients with kidney disease, it is inspiring to hear that so many nurses have sought to have a trademarked certification credential after their name, validating their competency in nephrology nursing practice. Certification is a tangible distinction that confirms one's knowledge and skill levels in a nursing specialty, and ensures excellence in the delivery of high-quality nursing care.

As patient advocates, the delivery of high-quality nephrology nursing care includes nurses' willingness and competence in having sensitive and timely Advance Care Planning (ACP) discussions with patients about their future health care wishes. It is estimated that 3.6 million Canadians have chronic kidney disease (CKD). When patients reach end stage renal disease (ESRD), they are in organ failure and dependent on renal replacement therapies for their survival. The illness trajectory for patients in organ failure includes a progressive and gradual functional decline in health punctuated with acute episodes of illness placing them at a higher-than-average risk for a more imminent death. An estimated 30% of patients aged 65–74 years starting dialysis have a mere five-year survival rate, which is statistically significant when compared to the average lifespan of the general population in this age cohort.

The unpredictability of CKD, including the pervasiveness of 'close calls' and significant health events, often cost patients their lives. Many patients with ESRD die after multiple extraordinary treatment measures have been attempted, often because their endof-life (EOL) treatment goals were not known by either their families or the health care team early enough in their illness to understand their wishes regarding the role of life-sustaining technology during the EOL period or terminal stage of their illness. Due to the chronic nature of ESRD and the unique nurse-patient relationships that develop over time, the nephrology nurse is often the first person patients will approach to discuss their future health care wishes. Communicating with patients about death, dying, and/ or EOL treatment decisions requires nurses to understand how being an effective communicator with patients is central to ethical nursing practice and, subsequently, in their ability to have sensitive discussions with patients about such topics as death and dying.

Starting with this *CANNT Journal* issue, information on the topic of ACP will be shared from our Alberta colleagues.

Je suis ravie de vous annoncer que, cette année, 198 infirmières et infirmiers de partout au Canada ont obtenu ou renouvelé leur certification en néphrologie de l'Association des infirmières et infirmiers du Canada (AIIC). De ce nombre, 106 ont reçu une première certification et 92 ont satisfait aux critères de renouvellement. À ce jour, nous comptons près de 1100 infirmières et infirmiers certifiés en néphrologie au Canada. Félicitations à tous ceux et celles qui ont réussi leur examen en 2015!

L'AIIC est la seule association au pays à offrir un programme national de certification. Les examens qu'elle propose s'avèrent l'occasion pour les infirmières et infirmiers autorisés de confirmer à l'échelle nationale les compétences qu'ils ont acquises dans leur domaine de spécialité en répondant aux critères normalisés prédéfinis. En songeant à la complexité des soins requis par les patients atteints de néphropathie, c'est très encourageant de constater qu'autant de professionnels cherchent à obtenir une certification reconnue, permettant de valider leur savoir-faire dans ce domaine. La certification est une distinction réputée qui confirme les connaissances et le niveau de compétence d'un professionnel dans une spécialité et assure l'excellence et la grande qualité des soins infirmiers prodigués.

Les soignants ont à cœur le bienêtre des patients. Des soins infirmiers de haute qualité en néphrologie passent notamment par la volonté et la capacité des infirmières et infirmiers d'engager en temps opportun une discussion délicate sur la planification préalable des soins, et ce, afin de comprendre comment leurs patients entrevoient la suite de leur traitement. On estime que 3,6 millions de Canadiens sont atteints de néphropathie chronique. Au stade de l'insuffisance rénale terminale, les reins des patients ne fonctionnent plus normalement et leur survie dépend des traitements de

suppléance rénale. L'évolution de la maladie chez les patients présentant une défaillance rénale est la suivante : dégradation fonctionnelle progressive de la santé ponctuée d'épisodes aigus de la maladie entraînant un risque de décès imminent plus élevé que la moyenne. Chez 30 % des patients âgés de 65 à 74 ans amorçant une dialyse, le taux de survie serait d'à peine 5 ans, soit un taux statistiquement significatif lorsqu'on le compare à l'espérance de vie moyenne de la population générale pour cette même tranche d'âge.

L'aspect imprévisible de la néphropathie chronique, y compris le spectre d'épisodes critiques et autres événements de santé majeurs, est souvent source de mortalité chez les patients. En présence d'insuffisance rénale terminale, bon nombre de patients décèdent après avoir tenté de multiples mesures exceptionnelles. Dans bien des cas, la situation serait tout autre si, dès les premiers stades de la maladie, la famille et l'équipe de soins connaissaient leurs objectifs thérapeutiques en fin de vie ou en phase terminale. Puisque l'insuffisance rénale terminale est là pour rester et qu'un lien unique finit par se développer entre patients et soignants, l'infirmière ou l'infirmier en néphrologie est souvent la première personne vers laquelle le patient se tourne pour discuter de sa volonté future en matière de soins de santé. Les infirmières et infirmiers doivent comprendre à quel point il est essentiel de savoir communiquer efficacement avec les patients, non seulement pour s'assurer d'une pratique éthique, mais pour aborder des sujets délicats comme la mort et les options thérapeutiques en fin de vie.

Pour commencer, dans ce numéro du Journal ACITN de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie, nos collègues de l'Alberta abordent la question de la planification préalable des soins.

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Reaching New Heigh

Reaching New Heights through Innovation and Excellence in Nephrology.

CANNT invites you to join us in Vancouver in 2015!



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Nephrology Healthcare Professionals Day

Wednesday September 16, 2015

How many times in a day does a nephrology healthcare professional rely on their fellow team members?

Take this day to remind each other of how much we appreciate every member of the team.

On a daily basis across Canada, consultation occurs amongst many professionals. Check their websites:



Journée des professionnels de la santé en néphrologie

Le mercredi 16 septembre 2015

Combien de fois par jour un professionnel de la santé en néphrologie peut-il compter sur les membres de son équipe ?

Prenez cette journée pour leur souligner à quel point vous les appréciez.

Chaque journée en Canada, la consultation est faite entre plusieurs practiciens. Voyez leur sites web :



Your board in action

The purpose of this report is to inform CANNT members of the current and proposed activities of the Board of Directors (BOD). The BOD is comprised of nine elected members: President-Elect, President, Past President, Vice-Presidents of Western Region, Ontario, Quebec, Atlantic and Technology, and Website/Treasurer. An integral part of the BOD is the Journal Co-Editors and our office administrator.

MEMBERSHIP

We currently have a membership of 510. Our membership base is nurses, technologists and affiliate members. Student memberships are also available at half of the full membership cost. This is available to full-time students only. The BOD is committed to maintaining membership by offering many benefits:

- Choice of one-year membership at \$75.00 plus tax, or two-year membership at \$140.00 plus tax
- · Access to a peer reviewed on-line journal
- Reduced registration fee at our annual symposium
- Access to members-only section of the CANNT website
- Applications for annual awards, bursaries and grants
- Opportunity to be elected to BOD positions.

FINANCES

The CANNT BOD continually strives to remain fiscally responsible. By conducting association business via regular teleconferences, we are able to significantly decrease meeting costs. The annual, in-person board meeting that is held in conjunction with the annual conference has been reduced to one day. This has also resulted in a reduced financial cost to the association.

STRATEGIC PLANNING

The BOD continues to develop our new strategic plan. We continue to look for growth and development opportunities to maintain the viability of the association. As we look forward we hold fast to our mission statement: "To provide leadership and promote the best nephrology care and practice through education, research and communication."

Increasing member benefits is a priority. Our partnership with Roche to develop educational materials for our membership is ongoing. In February, CANNT members were asked to participate in a "Vascular Access Needs Assessment Survey", as part of the development process. This survey was offered to both CANNT and non-CANNT members.

Looking to the future we have a strong obligation to maintain the financial viability of the association and have taken steps towards this.

JOURNAL

Our peer reviewed quarterly journal is available in a downloadable version in the members-only section of the CANNT website. It is recognized as a resource for all nephrology health care professionals and is indexed through CINAHL, MEDLINE, and OVID databases. Co-editors Jovina Bachynski and Matthew Phillips are dedicated to providing an excellent source of education for our members.

We encourage members to submit articles or research papers for publication. Guidelines for submission can be found under the "CANNT Journal" section of the CANNT website.

A Journal Award is also presented annually.

WEBSITE/SOCIAL MEDIA

The CANNT website is easy to navigate with quick links to resources. In the members-only section you will have access to the discussion forum where you can pose questions to your peers across Canada. Links are available to our refined clinical practice groups enabling you to connect to others within your speciality such as the Home Dialysis Interest Group, Clinical Educators Network, Canadian Hemodialysis Access Coordinators and the Canadian Nephrology Nurse Practitioners.

Contact information for members of the BOD, Journal Co-Editors and office administration are available on the website.

Membership renewal is made easy by clicking on the "renew now" link.

Upcoming events are posted with links to registration as available.

CANNT is also active on Facebook and Twitter.

COMMUNICATION

Regular bi-monthly e-mails of the CANNT Connection are sent out to membership to keep them informed of important deadlines and upcoming events.

On occasion we find it necessary to send out requests for membership participation in surveys. We will only do this after carefully considering if this will be of benefit to our members.

A CANNT "Booth in a Box" has been created to promote CANNT at the local level. If you are having an educational activity where you would like to use these materials it can be arranged through the administrative office at **cannt@ cannt.ca** or 1-877-720-2819.

ANNUAL CONFERENCE

CANNT 2015 "Reaching New Heights" at the Hyatt Regency in Vancouver, B.C. on October 22–24 is fast approaching. The planning committee has been meeting regularly via teleconference to ensure a quality educational experience. We look forward to seeing you there.

The planning committee for CANNT 2016 has already had its first meeting. Location and dates will be announced at CANNT Vancouver.

Deadline for submission of abstracts for oral and poster presentations is February 1 annually. Information is available on the CANNT website to help you with the submission process.

STANDARDS OF PRACTICE

The Nursing Standards of Practice have been posted on the CANNT website. A downloadable version is available in the members-only section. You may also purchase a copy by contacting the Association office.

French translation of the Nursing Standards of Practice is also available.

AWARDS, BURSARIES AND GRANTS

All information regarding awards, bursaries and grants awarded annually during the national symposium is located on the CANNT website under the "Resources" tab. These are available to members only.

Presentation of the awards, bursaries and grants to the successful recipients will occur in conjunction with the Annual General Meeting held on October 23, 2015 in Vancouver.

Deadline for applications is May 1 annually.

NOMINATIONS COMMITTEE

Call for nominations for positions on the Board of Directors is May 15 annually.

The positions of president-elect, VP Quebec, VP Atlantic and website coordinator/treasurer were available for nominations this year. Introduction of the successful candidates will occur during the AGM at which time they will commence their term.

Positions available for nomination in May 2016 will be president-elect, VP Western, VP Ontario and VP Technology.

There will be a motion put forward at the Annual General Meeting in Vancouver in October 2015 proposing a change in the president-elect position to a dual role of president-elect/treasurer, as well as a change in which the website coordinator/treasurer will become director of communications. These motions will be presented, discussed, and voted on during the AGM and, if passed, the changes will be effective with the incoming BOD.

CANADIAN NURSES ASSOCIATION (CNA)

CANNT is one of 40 specialty groups that are members of CNA. Nephrology is one of only 20 specialties that offer certification.

We congratulate all who have written the certification exam on April 18, 2015, and obtained their initial certification. Congratulations to those that have met the criteria for recertification.

Certification/Recertification bursaries will be awarded during the awards ceremony on October 23.

Professional certification demonstrates a commitment to the nephrology profession and a desire to maintain a high standard of care to your clients. CANNT membership can be used as part of the required hours to maintain your certification.

NEPHROLOGY HEALTHCARE PROFESSIONALS DAY

Each year on the third Wednesday of September we celebrate Nephrology Healthcare Professionals Day. Take the time to celebrate every member of your team as "Together We Make a Difference". A list of suggested ways to celebrate is located on the CANNT website.

CANNT OFFICE OPERATION

Our National Office is managed by Innovative Conferences and Communications. In an effort to remain fiscally responsible, there has been a reduction in office hours. The office staff is committed to returning phone calls or emails as soon as possible. Sharon Lapointe is the contact person and is available at **cannt@cannt.ca** or through the toll free number: 1-877-720-2819.

President-elect report: ANNA 2015

In April, I represented CANNT at the ANNA 46th Annual Symposium and was warmly welcomed by Cindy Richards, the association's incoming president, and its members. It was a pleasure to participate in their Recognition Lunch as our American colleagues celebrated their achievements in their awards program. Another highlight of the symposium was the release of the newest version of the ANNA Core Curriculum. Rather than one text, this invaluable tool is divided into six modules.

The four-day meeting was packed with a wide variety of topics that included:

- Certification Preparation Courses: PD, Hemodialysis
- Clinical Concerns in Acute Care: Sepsis, Apheresis, AKI Management, Heart Failure and CKD
- Pediatric Nephrology Issues: Congenital Anomalies, Fluid Management
- Pathophysiology: SLE, Diabetes and Hypertension
- Home Dialysis: Keeping Them Home, Urgent Start PD
- Sodium Imbalances, Hyperphosphatemia, Hyperkalemia

- Evidence-Based Practice, Achieving Targets, Patient-Centred Care
- Assessment of the Frail Elderly
- Vascular Access
- CKD: Group Visits, Modality Decisions
- Research, DOPPS
- Pregnancy and Renal Failure
- Palliative Care, Quality Dying,
- and many more.

The topics and themes throughout the symposium resonated as the same issues and areas of focus that we, in Canada, experience daily. It was an honour and privilege to participate in this symposium and hear about the experiences and perspectives of nurses from the U.S. and to meet with leaders from ANNA and other international organizations.

Respectfully submitted, Anita Amos, RN, BScN, CNeph(C) CANNT President-Elect

Psychosocial needs assessment post kidney transplant: Feasibility of a post-transplant specific support group

By Angela Brijmohan, Olusegun Famure, Kiren Sihota, Mary Shea, Barbara Marzario, and Margot Mitchell

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ABSTRACT

This project assessed unmet psychosocial needs of kidney transplant recipients and the feasibility of a support group located at an urban Canadian hospital to meet those needs. A survey assessed transplant recipient concerns about psychosocial issues related to transplantation, interest in a support group, desired group composition, facilitation, leadership, barriers and alternative forms of support. Most respondents were more than two years since transplant and were more concerned about medical complications, returning to normalcy, and had a greater desire to talk to other transplant recipients. Forty per cent of respondents indicated they would be interested in a support group. However, 60% indicated that a support group hosted in the hospital setting would be a deterrent to attending, citing time and transportation as the greatest barriers. More research is needed to assess the feasibility of post-kidney transplant support groups closer to recipients' homes and the feasibility of alternative forms of support.

Key words: psychosocial, needs assessment, kidney transplantation, social support

Kidney transplantation is the treatment of choice for patients suffering from end stage renal disease (ESRD), with recipients experiencing increased longevity and improved quality of life relative to patients on dialysis (White & Gallagher, 2010; Goetzmann et al., 2008; Luk, 2004). There are 23 adult kidney transplant programs in Canada to serve people with ESRD. This requires kidney transplant patients to travel outside their communities for

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Tel: 416-340-4800 ext 6806; E-mail: angela.brijmohan@mail.utoronto.ca and segun.famure@uhn.ca transplant assessment, treatment and follow-up (Canadian Institute for Health Information, 2010).

There is great emphasis on self-management post transplant; transplant medication protocols require recipients to take an active and independent role in their overall care. Post-transplant challenges for recipients can include side effects of medication, difficulty transitioning back to the work force, resuming physical activity, and psychologically coping with fear of graft failure. Chronic side effects due to corticosteroids and immunosuppressants can include, but are not limited to induced diabetes mellitus, increased risk of infection, cardiovascular problems, and skeletal defects (Luk, 2004). New onset diabetes after transplantation (NODAT) is a serious condition, which is associated with poorer graft and patient survival (Davidson et al., 2003). To minimize its effects, the transplant recipient must take on new and demanding self-management skills over and above those required for immunosuppression medication protocols.

Studies have shown a decrease in medication adherence over time, which, among other factors, may be linked to the demands and side effects of post-transplant medications (Gelb, Shapiro, & Thornton, 2010). The psychological profile of kidney transplant recipients indicates higher levels of depression, anxiety, and an overall lower quality-of-life score relative to the greater population (De Pasquale et al., 2011; Alavi, Aliakbarzadeh, & Sharifi, 2009). People with depression are three times more likely to be non-adherent to medication protocols (DiMatteo, Lepper, & Croghan, 2000). If this holds true for the transplant population, there may be implications for graft survival. Furthermore, adult kidney transplant recipients score lower than the general population on health-related quality-of-life assessments in physical and emotional capacity, overall health, vitality, and social functioning (Aaseboe, Homb-Vesteraas, Hartmann, & Stavem, 2009).

Kidney transplant recipients have occasionally expressed an interest in attending a support group at this centre. While the Multi-Organ Transplant Program at Toronto General Hospital (TGH), part of University Health Network, performs the most transplants and has the largest pool of post-transplant recipients for follow-up in Canada, we wondered if a post-transplant support group conducted in the hospital setting would meet the needs of this population, or if an alternative support model would better meet those needs. We believed a deeper understanding of unmet psychosocial needs was required to better support this population.

Social support can be defined as a network that provides psychological, physical, and financial aid. This aid can be in the form of emotional, instrumental, informational, appraisal, and affirmation support (Chisholm-Burns, Spivey, & Wilks, 2010). Support through group therapy for other chronic conditions has been shown to increase self-confidence, self-efficacy, and self-management, and improve outcomes. Group topics can include management strategies for dealing with side effects of medication, resuming physical activity, and tips for accessing financial benefits (Kiedar, Katz, & Nakache, 2001). Group intervention has been shown to improve medication adherence in people with hypertension and diabetes (Embuldeniya et al., 2013; Ogedegbe, Harrison, Robbins, Mancuso, & Allegrante, 2004; Garay-Sevilla et al., 1995). Groups can also be an efficient way of delivering support services. However, despite these benefits, barriers to successfully implementing and sustaining support groups may persist.

OBJECTIVE AND HYPOTHESIS

The objective of this project was to uncover the unmet psychosocial needs of kidney transplant recipients and to determine if a support group located at Toronto General Hospital (TGH) would be effective in meeting those needs. We hypothesized that recipients closer to transplant surgery (less than one year) would express more psychosocial needs and desire for support, and that the development of NODAT may increase recipients' perceived need for support initially after transplant surgery. Furthermore, we hypothesized that those in greater geographical proximity, as assessed through postal code information, would be more interested in attending a group located at TGH.

METHODS

This survey-based project utilized a convenience population sample of post-kidney transplant recipients at a single location (i.e., TGH). The proposal to recruit and collect survey data received ethical approval from University Health Network Ethics Review Board. A research assistant approached recipients in post-transplant clinic waiting rooms to recruit and administer the survey. Self-reported assessments were not correlated with medical charts since this was beyond the scope of the project.

Survey content and design

The survey consisted of a two-page questionnaire that assessed a range of psychosocial items and the relevance of a support group in addressing those items. We chose the items based on themes from a literature review using the key words: kidney transplantation, needs assessment, social support, anxiety, rehabilitation, cost of illness, psychological adaptation, psychotherapy, and self-help groups. We grouped items according to six themes, which we termed "domains."

In addition, we asked for feedback about how they would prefer a group to be structured in terms of composition, facilitation, and leadership. Recipients were asked to rate their interest in having a group composed of transplant recipients only, both recipients and support persons, guest speakers, and trained peer leader facilitators. We asked respondents to indicate their interest in attending a support group at TGH and about barriers to attending a TGH-based group. Nine open-ended questions were asked about other times along the renal disease continuum when a support group may have been helpful, factors that make a group successful, alternative forms of support, and additional comments. We asked respondents to provide the first three digits of their postal codes to assess proximity to TGH. Medical questions were limited to asking whether recipients had developed NODAT.

Psychosocial needs assessment

A five-point Likert scale was used to assess the degree to which recipients were concerned about 17 specific psychosocial items. For each item, recipients were asked to rate, "How much have you been thinking about [the item]," and "I think a group could help with this [item]" with responses ranging from 5 (quite a lot) to 1 (none or very little). In order to determine whether self-assessment of overall adjustment to post-transplant life influenced responses, respondents were asked to give a score out of five, to judge how well they felt they had adjusted post transplantation, with responses ranging from 5 (very well) to 1 (not so well). For ease of analysis and discussion, these 17 psychosocial items were grouped by theme into six domains of transplantation (Table 2). The domains are: medical complications, return to normalcy, financial costs of transplant, psychological impact, lack of support post-transplant, and desire to talk to other transplant recipients.

Recruitment of post-transplant recipients

Adult kidney transplant recipients receiving follow-up care at TGH were eligible for this needs assessment. Inclusion criteria included both first-transplant and re-transplanted kidney recipients, deceased donor, living donor, single kidney, and double kidney transplant recipients. Patients with multi-organ transplants were excluded.

New kidney transplant recipients are assigned to their physician and corresponding clinic on a rotating basis. Because of this rotation, each clinic is similar in having approximately the same proportions of new and longer-term recipients, with a greater number of longer-term recipients due to increased longevity and lifelong follow-up. Therefore, attributes of any clinic's attendees would not differ from another clinic in any systematic way. Thus, we believe this sample to be representative of the larger post-kidney transplant population at TGH. Clinics occur each weekday. The research assistant visited two Wednesday clinics for 12 months. Based on availability, 150 of the 170 recipients attending those clinics were approached, 110 recipients consented to participate, and 99 out of 110 surveys had the scaled items fully or nearly completed.

Analysis

All analyses were conducted by chi-square tests using the SPSS software (Statistical Package for the Social Sciences, version 20). Items were compared using between item analyses. Psychosocial domain comparisons were made between recipients who had expressed high concern in at least two items in a given domain. Recipients were stratified by time since transplant for the domains of greatest concern.

RESULTS

Demographics and survey completion

Table 1 summarizes the demographic characteristics of respondents. One hundred and seventy recipients were approached at the TGH outpatient transplant clinic with a response rate of 73%. Ninety-nine out of 110 surveys had all or nearly all scaled psychosocial items completed and were used in the analysis. Most of the respondents are at least two years post-transplant; this reflects the reality that we have far more longer-term recipients to serve than those temporally close to their transplant. This is an important realization in planning social support.

Post-transplant recipients' needs assessment

The number of recipients who indicated that they were *concerned* (4 to 5), *somewhat concerned* (3) or *not concerned* (1 to 2) over each item is summarized in Table 2. Respondents who provided a score of 4 to 5 for at least two items within a specific domain were classified as being concerned with that domain. Recipients were also asked to indicate if a support group would be useful to address each item. Ratings of 4 and 5 were taken as an endorsement of a support group to address that item.

Psychosocial domains of concerns stratified by individual items and time post transplant

Figure 1 summarizes the number of recipients who expressed significant concern with each domain. Domains of greatest concern were medical complications (41%), return to normalcy (28%), and desire to talk to other transplant patients (26%). Results were stratified by time since transplant to identify the specific needs of each time post-transplant group.

Recipients more than two years post-transplant were found to be statistically significantly more concerned about the following domains: medical complications (χ^2 [4, n = 40] = 22.05, *p* < 0.001), return to normalcy (χ^2 [4, n = 27] = 10.21, p < 0.04) and had a greater desire to talk with other transplant patients (χ^2 [4, n = 26] = 12.08, *p* < 0.02) relative to other time groups. Between item analyses revealed that recipients were most concerned about side effects of medications and the development of new health problems. Those who had their graft for three to six months were the least concerned about complications related to surgery (χ^2 [4, n=43] = 22.04, *p* < 0.001). There was no significant finding between respondents who reported a new diagnosis of diabetes after transplant (NODAT) and those who did not develop diabetes.

Overall adjustment post transplant

All recipients were asked to rate their overall adjustment post transplant. Twenty-two recipients reported feeling *not so well* to *somewhat adjusted* (a rating of 1 to 3). To assess internal validity, this finding was cross-referenced with their item ratings. Of those who reported feeling *not so well* to *somewhat adjusted*, 16 recipients also indicated a high degree of concern over at least one domain. These 22 recipients were further stratified based on time post transplant, with the majority being more than two years or less than three months post-transplant (12 out of 22 and five out of 22, respectively). Of the 22 recipients who identified as feeling less adjusted, four indicated that they would attend a group at TGH for support.

Desirability of a support group to address psychosocial items

Recipients were asked to rate the degree to which they believed a support group would help address each item of potential concern (Table 2). A support group was identified as being most useful in allowing recipients to share transplant experiences with others (n=50), return to leisure activities (n=43), and to seek advice from other patients (n=39). Forty per cent of recipients identified a support group as a useful way to address concerns over medical complications post transplant. Specifically, recipients in the three to six months and greater than two years post-transplant groups felt a support group would be beneficial in addressing concerns about medical complications (50% and 49%, respectively).

Comments summary

Recipients were asked to respond to nine open-ended questions. Not all respondents provided comments to these questions. The questions were meant to elicit their opinions in their own words on group-related topics—the desired qualities of a group, location, timing within the transplant/ ESRD continuum, composition, and alternative means of

Table 1: Demographic Characteristics of Respondents							
Variable	Mean ± SD						
Age (years)	52.7 ± 16.6 Number of respondents (n=99)						
Gender							
Male	57						
Female	41						
Time post-transplant							
<3 months	20						
3–6 months	8						
6–12 months	13						
1–2 years	10						
>2 years	47						
Diabetes diagnosis							
Pre-transplant	20						
NODAT (New Onset Diabetes After Transplant)	17						
None/never	59						
Not specified	2						

social support. A small number of comments underlined that group may be helpful pre-transpant or while on dialysis, that a group closer to home is desirable, and that support around the medical aspects of transplant is valued. Also, a small number indicated a web forum or even a hotline was a desirable alternative to a group.

Barriers to attending a social support group at TGH

Eighty recipients provided a response to the question: "Would you attend a support group at TGH?". Forty-eight of those recipients stated that they would not. Thirty-two recipients stated that they would attend a group at TGH, with 15 of 32 recipients residing in the Toronto area (postal code starting with M) and 17 of 32 recipients from the regions surrounding Toronto. Time (n=56) and transportation (n=55) were identified as the leading barriers to attendance at this site.

DISCUSSION

In our survey, concerns about medical complications and concerns about returning to normalcy were endorsed most often and especially by two groups: recipients who were less than three months post transplant and greater than two years post transplant.

Medical complications

Collectively, 40% of survey respondents endorsed a group as a useful method to address concern with medical

Table 2. Items surveyed by domain									
Domain of transplantation	ltem	Not concerned (1-2)	Somewhat concerned (3)	Concerned (4-5)	Support group endorsement (4-5)				
Medical	Complications due to surgery	43	29	27	26				
complications	Rejection	38	28	28	26				
	Hospitalization	45	23	27	28				
	New health problems	39	25	31	35				
	Side effects of medications	31	23	44	35				
Return to	Transitioning back to work	44	28	27	34				
normalcy	Resuming physical activity	34	30	35	35				
	Leisure activities	40	27	31	43				
Financial costs of transplant	Drug coverage	26	29	29	30				
	Financial repercussions of transplant	34	11	33	22				
Psychological impact	Concerned that transplant is a chronic condition	49	28	18	32				
	Reported not feeling normal after transplant	69	19	10	22				
	Did not think transplant would be like this	68	17	11	23				
Lack of social support post-transplant	Desires the same level of support as when on dialysis	36 25		37	34				
	Desires emotional support with problems after transplant	60	16	23	32				
Desire to talk to other	Desires advice from other transplant patients	38	31	29	39				
transplant patients	Desires to share transplant experience with others	25	26	48	50				

Note. Summary of number of responses to post-transplant recipient needs assessment items surveyed, organized by domain and degree of concern per item.



Figure 1: Number of respondents who expressed concern about each domain of transplantation, stratified by time post-transplant

complications. When stratified based on time since transplant, 50% of recipients who were three to six months since transplant and 48% of recipients greater than two years since transplant endorsed a group. This finding is consistent with the higher degree of concern with medical complications found in these time groups.

Side effects of medication was the medical complication of greatest concern, particularly among respondents who were less than three months and greater than two years since transplant. This is consistent with the finding that recipients on a strict medication regimen are often combating both physical and psychological side effects associated with immunosuppressive drugs. For example, immunosuppression medications have been shown to increase the risk for depression, new onset diabetes after transplant (NODAT), infection, cardiovascular problems, and skeletal defects (Ackoundou-N'Guessan et al., 2010; Luk, 2004). Given this high degree of concern over medical complications and acknowledgement that group support would be a desirable way to address such concerns, a professional resource within a group to provide information about side effects of medication or other complications of transplant may be beneficial. Thirty-seven per cent of our respondents preferred a group with medically knowledgeable support staff.

Interestingly, even though respondents in the three to six months post-transplant group were statistically less concerned about medical complications, 49% still endorsed a group as an effective method to manage these concerns. This may be due to the increased quality of life recipients experience following transplant compared to their previous status on dialysis (De Pasquale et al., 2011; Szeifert et al., 2010; Alavi et al., 2009). In terms of lifestyle and medication management, the period between three and 24 months is marked with less-frequent clinic appointments, self-regulation, and health management (Chisholm-Burns et al., 2010), as recipients begin to resume their pre-dialysis independence and return to normalcy. Still temporally close to transplant, and feeling well enough to do so, the three to six months post-transplant recipients tend to use engagement strategies of coping, and are, thus, more likely to seek information and guidance (Liu, Feurer, Dwyer, Shaffer, & Pinson, 2009).

Even more intriguing, and contrary to our expectation, was the finding that the group most concerned with medical complications, those zerp to three months since transplant, were least interested in attending a support group. Recipients seem to feel well supported by the higher degree of interaction between doctors and nurse coordinators within the first few months of medical follow-up. Also contrary to our expectations was the finding that people who developed NODAT did not express any increased concerns over medical complications compared to those who did not develop NODAT. The majority of NODAT diagnoses are made in the first six months after kidney transplant (Davidson et al., 2003), a period encompassing two groups of our survey recipients: those who were most concerned with medical complications (zero to three months) but not needing a group, and those who were least concerned with medical complications (three to six months).

We did not collect data on medical events other than NODAT to correlate recipient responses. Chronic rejection or disease recurrence may have been a reality for a number of recipients in our survey who had their graft for greater than two years. Graft loss is an eventuality that kidney recipients will face unless death occurs due to other medical conditions. Uncertainty around their graft function expectancy and limited longevity may be an ever-present question, even while one carries on with life (Gill, 2012). Graft loss will dictate the re-initiation of dialysis. In one study, 60% of those with chronic rejection self-reported depression, more than those whose graft was functioning well and more than those who were on dialysis but on a transplant waiting list (Zalai, Szeifert, & Novak, 2012). Typically, our centre would refer the recipient back to the referring renal centre for re-initiation of dialysis. This tremendous loss is occurring at a time when continuity of care is broken. A group experience has the potential to offer continuity or support to a recipient at this challenging time. The benefits of support groups in other studies have proven to be substantial and may include legitimization, universality, mutuality, belonging, feedback, and identification with others with similar post-transplant trajectories (Kiedar, Katz, & Nakache, 2001; Embuldeniya et al., 2013).

Recipients with a graft for greater than two years have a higher risk of decreased adherence to medications. This is a time when the kidney transplant recipient has recovered from surgery and has likely returned to household, social, and family roles. In addition to being busy, their interaction with the transplant team is likely to be minimal. Collectively, this may interfere with medication routines (Gelb et al., 2010). Intentional or unintentional non-adherence may be occurring; the latter may be with or without recognition after the fact. Past studies have shown a threeto five-fold increase in medication compliance for recipients receiving informational support (Chisholm-Burns et al., 2010). This method of support holds clinical and economic relevance in enhancing medication adherence for recipients along their transplant trajectories. Thirty-seven per cent of our respondents preferred a group with medically knowledgeable support staff. This trend of informational support associated with improved outcomes has been noted in other chronic conditions such as heart failure, schizophrenia, hypertension, and diabetes (Ogedegbe et al., 2004; Embuldeniya et al., 2013).

While those immediately post-transplant would be expected to express the most concern about their health, being in the period when medical concern over complications and rejection is highest, the number of respondents in this sample who expressed significant concern after two years was instructive. While most of the focus of the clinical team is in the first year after transplant, our finding underlines that psychosocial needs persist well beyond. In Ontario, funding for post-transplant care is also focused on this initial period, resulting in the allocation of resources favouring the pre-transplant assessment, inpatient experience, and early post-transplant care. Groups may offer a cost-efficient way of offering social support to address the long-term psychosocial needs of the kidney transplant recipient.

Return to normalcy

Generally, kidney transplant recipients who have had their graft for two or more years would have had the opportunity to settle back into work, family, and social life. When constructing this survey, we treated those beyond this time point as a homogenous group. Breaking this large group down further, e.g., two to five years and five-10 years, may have been more informative given the level of concerns expressed by this group.

While we assume recipients more than two years since transplant have recovered enough to return to work, we cannot assume that they have achieved a return to work. It can be hypothesized that the longer one has been out of the work force, the harder a return to work might be. In a study done at this centre, all kidney transplant recipients who had returned to work had done so within the first year (Nour, Heck, & Ross, 2014). Our finding that return to normalcy is of high concern is consistent with other studies in which transplant recipients have voiced concern for informational support about transitioning back to work and exercise (Luk, 2004). Recipients may pursue lighter fitness activities out of fear of damaging their transplanted kidney (Karayalcin, Genc, Oztuna, Huseynova, & Ersoz, 2010). For those returning to the workforce, employment has been observed to reduce medication adherence due to changes in recipients' schedules, causing missed or forgotten doses (Russell et al., 2010). Support groups can encourage workforce participation when appropriate, could highlight the potentially detrimental effect of busyness on medication adherence, and help participants problem-solve around this and other concerns about the transition back to work.

Our centre discusses return to work while the kidney transplant candidate is in the pre-transplant assessment. We indicate that we anticipate recipients will be capable of returning to work and that most are no longer considered "disabled" after recovery from transplant. We feel that encouragement and expectation to return to work are important before and after transplant. A post-transplant group could contribute to identifying resources for vocational counselling, upgrading, retraining, and job search.

Desirability and feasibility of post-transplant support group

Sharing their experience with others, seeking advice from others, and returning to leisure activities were cited as motivations for endorsing a support group in general, although not specifically at the TGH location. Our respondents endorsed a hypothetical support group composed of other recipients, with professional leadership, and with professional guest speakers in both health care and nonhealth care roles. Nutritionists, Aboriginal leaders and financial "advisors" were suggested, although the scope of financial advice desired was not described. Financial costs of transplantation were of intermediate concern to 33% of respondents and 22% endorsed the usefulness of a group in addressing this concern. However, the practicality of providing financial advice in a health care setting is limited. It was not clear whether some respondents were looking for "advisors" for investing and financial planning, or for information regarding income replacement or health benefits, which is readily available through staff social work. Anecdotally, recipients can sometimes be surprised and

disappointed that the so-called social safety net is not as robust as they had assumed before needing to tap into it. It is often useful for people to compare their circumstances, potentially through a group, to see if they qualify for other means of financial support and benefits.

It should be noted that our survey assessed desire for a *hypothetical* group. We were not asking about a commitment to attend a specific group at a specific time. Actual attendance is often lower than expected for a number of reasons (Moyer, Knapp-Oliver, Sohl, Schnieder, & Floyd, 2009), and attendance may increase with patient distress (Levy & Derby, 1992). Of 22 recipients in our survey who identified themselves as poorly adjusted, four recipients felt a group may be helpful. Thus, while a time-limited group held periodically over a number of weeks may appeal to some, for others who may be seeking a group in times of distress, a group's timing may be hit and miss, and an ongoing drop-in group may provide more accessibility. Still others may not identify groups as a priority in times of distress.

Alternatives to support group at TGH

When asked about attending a support group specifically at Toronto General Hospital, 48 out of 80 participants declined, citing time and transportation as barriers. Worry about transportation, traffic, and parking is an extremely common theme expressed anecdotally by transplant recipients before and after their transplant surgery, and is the subject of much social work attention. Many people who live in the urban areas surrounding Toronto express a reluctance to drive "in the city", referring to the downtown location of TGH.

We propose a number of alternative methods to increase support post-kidney transplant. This survey identified a group with both recipients and support staff as the desired composition for a group. An online support group may facilitate the exchange of informational support between participants (Kuhl, Sears, & Conti, 2006; Paul, Carey, Sanson-Fisher, Houlcroft, & Turon, 2013; Kuijpers, Groen, Aaronson, & van Harten, 2013). Such a forum would allow for an interface with professionals. In addition, a "frequently asked questions" website can provide information about medication adherence, self-management tips, lifestyle, and employment (Taylor et al., 2012). However, the utility of web forums is dependent on familiarity with using the Internet, which may vary. While one might assume a preference for an online group would be strong in younger recipients, a focus group with 18-25 year-old transplant recipients transitioning from a pediatric facility to adult care found that most participants valued in-person connections with peers rather than an electronic media experience (Mitchell et al., 2010).

Outside of this study, kidney transplant recipients at TGH have expressed that they miss both staff and patients at their dialysis centre. As renal centres are more decentralized than transplant centres, they may be more geographically accessible and able to offer a mix of participants (both pre-and post-transplant recipients) to allow transplant recipients to both give and receive support. A model very close to this exists at Lakeridge Health in Oshawa, Ontario. The Kidney Connect Support Group under the auspices of the Kidney Foundation of Canada, Ontario Chapter, meets once every three weeks. It is entirely patient-driven with the Kidney Foundation of Canada providing training for peer support.

Strengths and limitations of survey

We believe this project to be the first to assess the feasibility of a transplant centre-based support group to address the psychosocial needs of post-kidney transplant recipients in a large urban centre in Canada. This survey was limited in its statistical strength due to an uneven population sample in each time group post transplant. This is a product of the convenience sample of recipients present and willing to complete the survey in the clinic waiting room. In reality, however, the number of longer-term post-kidney transplant recipients does greatly exceed the numbers of newly transplanted recipients.

While the objective of the project was to explore support for the post-kidney transplant population, it has become clear that because of the two-way movement of people with kidney dysfunction between the dialysis and transplant realms, people value interaction with their peers across those realms. This survey did not capture voices all across the continuum of care: those on dialysis, those who have been referred for transplant assessment, those on the waiting list, and finally, those who have been referred back to their renal centre for re-initiation of dialysis. It did, however, ask people to comment on their past and whether there was a time that group may have been helpful. The few responses received did validate a desire for interaction with peers all along the kidney care continuum.

This project found a far more significant degree of psychosocial concern than anticipated in recipients who had their graft for longer than two years, suggesting further attention is warranted to support long-term kidney transplant recipients. Further studies should stratify this group more thoroughly and examine their specific needs. It is possible that our survey overestimates the transplant population's interest in a support group. Those patients who consented to completing a survey may have been more interested in the utility of a support group relative to those who declined. This introduces a selection bias in our sample.

CONCLUSION

The majority of recipients who were more than two years since transplant were significantly more concerned about medical complications, returning to normalcy, and had a greater desire to talk to other transplant recipients. Although a hypothetical group was seen as beneficial to addressing these needs, 60% of respondents stated they would not attend a group located at a hospital "downtown" in a large urban centre due to time and transportation barriers. More research is needed to assess the feasibility of post-kidney transplant support groups in greater proximity to recipients' homes, as well as the feasibility of alternative forms of support.

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Warfarin for stroke prevention in hemodialysis patients with non-valvular atrial fibrillation

By Souzi Badr, Karen Cameron, and Marisa Battistella

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OBJECTIVES

After reading this, the reader should be able to:

- 1. Describe the pathophysiological mechanism of stroke in atrial fibrillation.
- 2. Describe the mechanism, side effects, and common drug interactions of warfarin.
- 3. Explain the controversy regarding using warfarin for stroke prevention in hemodialysis patients with atrial fibrillation.
- 4. Identify factors that either favour or oppose the use of warfarin for stroke prevention.

INTRODUCTION

Atrial fibrillation (AF) is a sustained cardiac arrhythmia and a common comorbidity among patients with end stage renal disease (ESRD). A major complication of AF is stroke. Patients with AF have a five times greater risk of ischemic stroke (January et al., 2014) than the general population. In an effort to reduce this risk, oral anticoagulants are often prescribed for stroke prevention. In patients on hemodialysis the options for anticoagulation are limited and warfarin is the drug of choice. The decision to initiate warfarin in these patients, however, remains an area of clinical controversy. While patients on hemodialysis are at increased risk of stroke, they also are at increased risk of bleeding. Clinicians are faced with the challenge of balancing the potential risks and benefits of warfarin when managing this patient population. In this article, we will focus on warfarin's role for stroke prevention in hemodialysis patients with non-valvular atrial fibrillation.

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PATHOPHYSIOLOGY OF ATRIAL FIBRILLATION

AF is a supraventricular tachycardia that manifests as a rapid irregularly irregular heart rhythm. In a normal heart, electrical impulses are generated within the sinoatrial node of the right atrium and subsequently travel to the ventricles. These electrical impulses innervate the myocardium (Sanoski & Bauman, 2014) causing a synchronous contraction where first both atria contract followed by both ventricles. In AF the electrical impulses from the atria are rapid and disorganized resulting in irregular activation of the ventricles (Sanoski & Bauman, 2014). This leads to an asynchronous contraction of the heart. As a result there is incomplete transfer of blood from the atria to the ventricles, and blood pools within the atria. This atrial stasis predisposes patients to the formation of blood clots, which can subsequently embolize to the brain causing stroke (Sanoski & Bauman, 2014).

Stroke prophylaxis in patients with atrial fibrillation

Aspirin and oral anticoagulants are the mainstay of therapy for the prevention of stroke in patients with AF. The decision of which agent to use is based on patients' risk factors for stroke and bleeding (Verma et al., 2014). In patients at high risk of stroke, the Canadian Cardiovascular Society (CCS) guidelines suggest that the new oral anticoagulants (NOAC; e.g. dabigatran, rivaroxaban, apixaban, edoxaban) be used in preference to warfarin (Verma et al., 2014). The recommendation changes, however, in high-risk patients with a glomerular filtration rate between 15 and 30 mL/ min/1.73m². In this instance the guidelines suggest warfarin be used in place of a NOAC (Verma et al., 2014) due to the limited experience of these agents in patients with poor renal function. In patients on hemodialysis, the recommendation for routine anticoagulation with warfarin is not as clear (Herzog et al., 2011; Verma et al., 2014). Clinicians must consider patients' risk of stroke, bleeding, and the available evidence when deciding whether to initiate warfarin.

Risk of stroke in patients on hemodialysis

Atrial fibrillation affects 5.6 to 24.7% of patients with ESRD (Wizemann et al., 2012), and is estimated to have a prevalence that is 10- to 20-fold greater than in the general population (Marinigh, Lane, & Lip, 2011). Unlike in the general population, the association between AF and risk of ischemic stroke is not well established in patients

on hemodialysis. While some studies have shown that AF increases risk of stroke in hemodialysis patients (Go et al., 2009), others have not shown the same association (Marinigh et al., 2011; Genovesi et al., 2008; Wiesholzer et al., 2000). Many of these studies had limitations such as observational designs, small sample sizes, or low event rates (Genovesi et al., 2008; Holden & Clase, 2009; Wiesholzer et al., 2000), all of which add to the uncertainty in treating this patient population. Another potential reason for these conflicting findings is that patients with ESRD have a four to 10 times greater risk of ischemic stroke even in the absence of AF (Seliger, Gillen, Longstreth, Kestenbaum, & Stehman-Breen, 2003). Given that the etiology of these strokes is not always known (Sood, Komenda, Sood, Rigatto, & Bueti, 2009), it remains unclear if patients would benefit from warfarin therapy.

Risk of bleeding in patients on hemodialysis

Patients with ESRD are at increased risk of bleeding and have a four to six times greater risk of hemorrhagic stroke than the general population (Seliger et al., 2003). This greater risk for bleeding stems from: defects in platelet secretion or aggregation secondary to uremia; mucosal abnormalities in the gastrointestinal tract; use of heparin during hemodialysis sessions, and; the increased number of invasive procedures performed in this patient population (Holden & Clase, 2009). The addition of warfarin potentiates the risk of bleeding making it important for clinicians to consider these risks when deciding whether to initiate therapy.

Warfarin: Mechanism of action

Warfarin is a vitamin K antagonist that acts by inhibiting the synthesis of clotting factors (Factors II, VII, IX, X) and anticoagulant proteins (Protein C and S) (Bristol-Myers Squibb, 2012). Warfarin has an initial onset of 24 hours. However, it usually takes 72 to 96 hours to reach its peak anticoagulant effect (Bristol-Myers Squibb, 2012). It is used to prevent the formation and further growth of pre-existing clots in the vascular system (Bristol-Myers Squibb, 2012). This, in turn, reduces the risk of thromboembolic complications such as stroke.

Warfarin: INR monitoring

Warfarin has a narrow therapeutic index and requires frequent blood level monitoring. The international normalized ratio (INR) is a standardized measure of a patient's prothrombin time (PT). It tells clinicians the time it takes for a patient's blood to clot. In patients taking warfarin for AF, clinicians often target an INR of 2 to 3. When INRs are supratherapeutic patients are more likely to bleed, while when INRs are subtherapeutic patients are more likely to develop a clot. In the general population, patients on warfarin are usually within target range approximately 60 per cent of the time (Reynolds et al., 2004). In comparison, patients receiving hemodialysis have more difficulty maintaining an INR in range and are in target range less than 50 per cent of the time (Quinn, Richardson, Cameron, & Battistella, 2014).

Warfarin: Interactions

A major challenge to the maintenance of therapeutic INRs is the sensitivity of warfarin to changes in diet, alcohol intake, and drug interactions. Diet can affect INR because several foods such as kale, spinach, broccoli, and asparagus are high in vitamin K (Lexi-Comp Online, 2015). Patients who increase their usual intake of these foods may see a decrease in their INRs, while those who eat less than usual may notice the opposite effect. Patients on warfarin can continue to eat these vegetables, but are suggested to maintain a consistent diet in an effort to reduce such fluctuations in INR. Similarly, alcohol has the potential to affect INR and, if taken in excess, may increase patients' risk of bleeding.

Drug interactions with warfarin are also very common and can be classified as pharmacodynamic or pharmacokinetic. Pharmacodynamic interactions do not affect INR, but do increase patients' risk of bleeding. Some examples include aspirin, clopidogrel, and anti-inflammatory agents such as ibuprofen (Bungard, Yakiwchuk, Foisy, & Brocklebank, 2011; Holbrook et al., 2005; Juurlink, 2007). Medications with pharmacokinetic interactions with warfarin affect the INR. Some medications that may cause an increase in INR include antibiotics such as trimethoprim-sulfamethoxazole, metronidazole, or fluoroquinolones; antifungals such as fluconazole; and amiodarone (Bungard et al., 2011; Holbrook et al., 2005; Juurlink, 2007). Medications that may cause a decrease in INR include rifampin; anticonvulsants such as carbamazepine; and certain anti-virals used in patients with the human immunodeficiency virus (Bungard et al., 2011; Holbrook et al., 2005; Juurlink, 2007). Despite having significant interactions with several medications, warfarin can be used safely in conjunction with most medications with increased monitoring.

Warfarin: Safety

The most common adverse reaction to warfarin is bleeding. Patients may note minor bleeding such as increased tendency to bruise, occasional nosebleeds, and gum bleeding. Major bleeds such as fatal or nonfatal hemorrhage can also occur. However, these events tend to happen when patients' INRs are supra-therapeutic. Blood found in the urine, vomit, or stool should be reported to patients' physicians, as these may represent more serious bleeds. A rare side effect that may occur soon after initiating warfarin is necrosis of the skin and other tissues; it should always be reported and investigated further (Bristol-Myers Squibb, 2012).

Risk of vascular calcification

A more recent concern with the use of warfarin is the risk of vascular calcification. Vascular calcification is common in hemodialysis patients and is an independent risk factor for cardiovascular mortality (Krueger et al., 2013). Warfarin may potentiate this risk by inhibiting the activation of the vitamin-k-dependent matrix G1a protein (MGP), a protein that when active acts as a strong inhibitor of vascular calcification (Krueger et al., 2013). As a result of this inhibition, there may be a greater risk of developing calcification. Given the association of vascular calcification and mortality, some clinicians are now considering this theoretical risk when deciding whether to initiate warfarin therapy.

Warfarin use in hemodialysis patients with atrial fibrillation

While there have been several randomized controlled trials (RCT) looking at warfarin use for stroke prophylaxis in AF, most of these studies excluded patients with ESRD (Marinigh et al., 2011). Several observational studies have been published in an effort to describe the association between warfarin use and stroke and bleeding in the ESRD patient population (Chan, Lazarus, Thadhani, & Hakim, 2009; Genovesi et al., 2015; Olesen et al., 2012; Shah et al., 2014; Winkelmayer, Liu, Setoguchi, & Choudry, 2011). The majority of these studies are retrospective cohorts and many rely on claims or registry data for the determination of rates of stroke and bleeding (Olesen et al., 2012; Shah et al., 2014; Winkelmayer et al., 2011). Due to the heterogeneity in definitions for stroke, bleeding, and the patient populations studied, the results of these trials are conflicting.

Contrary to what has been observed in the general population, warfarin use has not consistently shown a reduction in stroke in patients with AF and ESRD. The majority of these studies showed no significant difference between warfarin use and the risk of ischemic stroke (Chan et al., 2009; Genovesi et al., 2015; Shah et al., 2014; Winkelmayer et al., 2011), though one study in a cohort of Danish patients did demonstrate that warfarin use was associated with a significantly lower stroke risk than no exposure to warfarin (Olesen et al., 2012). The latter study, however, has been cited as having a healthier cohort of ESRD patients than would typically be expected; with patients in the ESRD group having a lower risk of bleeding and lower prevalence of hypertension and diabetes compared to previously published studies (Olesen et al., 2012; Schlieper, Kruger, & Floege, 2012). With respect to bleed risk, while many of the studies differed in their definitions, all studies to date have confirmed the association between warfarin and the increased risk of bleeding (Chan et al., 2009; Genovesi et al., 2015; Olesen et al. 2012; Shah et al., 2014; Winkelmayer et al., 2011). Thus, given the uncertainty between warfarin's role in reducing stroke and its high likelihood of increasing bleeding, clinicians are faced with the challenge of balancing patients' risks of bleeding and stroke when deciding on therapy.

CLINICAL UNCERTAINTY PERSISTS

It is not surprising that there is no consensus on how to manage patients with atrial fibrillation and ESRD. While the CCS and the Kidney Disease: Improving Global Outcomes (KDIGO) guidelines suggest against the routine prescription of oral anticoagulant therapy for stroke prevention in AF (Herzog et al., 2011; Verma et al., 2014), the American Heart Association guidelines suggest it may be reasonable to prescribe warfarin to patients on hemodialysis with an elevated risk of stroke (January et al., 2014). In all cases, the guidelines acknowledge that these recommendations are based on limited evidence. The resultant effect is there is significant variation in the prescribing patterns worldwide for anticoagulation in this population. The Dialysis Outcomes and Practice Patterns Study (DOPPS) aimed to describe these patterns in an international cohort of hemodialysis patients with AF (Wizemann et al., 2010). The authors report as high as an 18-fold difference between countries in the frequency of warfarin prescriptions. Amongst all countries sampled, anticoagulant use in Canada was the greatest with as many as 37% of patients with AF on warfarin (Wizemann et al., 2010). Given the prevalent use of warfarin in Canada, it is important to recognize factors that may favour or oppose its use for stroke prevention.

Factors to consider when initiating or continuing warfarin

One approach that may help clinicians when deciding to initiate anticoagulation with warfarin is to stratify a patient based on their risk of stroke and bleeding. In the general population scoring tools such as the HASBLED or CHADS₂ score are used to stratify patients based on their risk of bleeding or stroke respectively, where the higher the score the greater the risk.

The HASBLED score, which awards one point for each of uncontrolled hypertension, renal disease, liver disease, history of stroke, labile INR, age greater than 65 years and medications that predispose bleeding has not been validated in patients with ESRD. Despite this, many clinicians still use the tool as a reference for potential risk factors to consider when assessing bleeding risk. Similarly the CHADS, score, which awards a score of one for each of congestive heart failure, hypertension, age above 75 years, diabetes and two points for stroke has also not been validated in patients with ESRD (Herzog et al., 2011). One study aimed to evaluate the performance of the CHADS, scoring tool in a cohort of hemodialysis patients with AF and found that hypertension and heart failure did not show the same association with stroke as in the general population (Wizemann et al., 2010). In contrast, a large retrospective review found an association between advanced age, heart failure, and elevated systolic blood pressure and stroke in incident hemodialysis patients with AF (Chan et al., 2009). Such discrepancies suggest that clinicians must use these factors with caution when determining stroke risk in hemodialysis patients.

In 2009, Sood and colleagues published a list of suggested factors to help stratify oral anticoagulant use for stroke prevention in hemodialysis patients with AF. Some factors that may favor the use of warfarin include age greater than 75 years, previous stroke, patient preference, and a known atrial thrombus (Sood et al., 2009). Some factors that may not favour using warfarin include concurrent use of antiplatelet medications, history of calcification of arteries, uncontrolled hypertension, non-compliance, previous life-threatening hemorrhage, active bleeding, or age less than 65 years with no other risk factors for stroke (Sood et al., 2009). Given the clinical uncertainty surrounding warfarin's efficacy and its known risks it is important that patients are involved in the decision-making process.

CONCLUSION

There is a high prevalence of AF among patients on hemodialysis. The presence of AF may further increase risk of stroke in these patients, which is already elevated. While warfarin is often used for stroke prophylaxis in the general population, its efficacy in hemodialysis patients has not been established. The current evidence surrounding

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warfarin's ability to reduce stroke rate is conflicting, and it remains unclear if the benefits of warfarin outweigh its risks of bleeding. Until RCTs can be performed to better answer this question, clinicians must balance patients' risk factors for stroke and bleeding, and also consider patient preferences when deciding whether to treat patients with warfarin.

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CONTINUING EDUCATION STUDY QUESTIONS

CONTACT HOUR: 2.0 HRS

Warfarin for stroke prevention in hemodialysis patients with non-valvular atrial fibrillation

By Souzi Badr, Karen Cameron, and Marisa Battistella

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- 1. Why are patients with atrial fibrillation at an increased risk of stroke compared to the general population?
 - a) pooling of blood in the atria predisposes patients to the formation of blood clots
 - b) pooling of blood in the ventricles predisposes patients to the formation of blood clots
 - c) patients with atrial fibrillation are in a hypocoaguable state and are more likely to develop blood clots
 - d) all of the above
- 2. What is the most common INR target for patients with non-valvular atrial fibrillation taking warfarin?
 - a) 1 to 2
 - b) 2 to 3
 - c) 1.5 to 2.5
 - d) 2.5 to 3.5
- 3. Which of the following medications has the potential to decrease a patient's INR?
 - a) ciprofloxacin
 - b) fluconazole
 - c) amiodarone
 - d) carbamazepine

- 4. Which of the following medications has the potential to increase a patient's INR?
 - a) aspirin
 - b) ibuprofen
 - c) clopidogrel
 - d) metronidazole
- 5. A patient should seek medical attention if they notice blood in their:
 - a) urine
 - b) stool
 - c) vomit
 - d) all of the above
- 6. Patients with end stage renal disease have an increased risk of bleeding because of:
 - a) defects in platelet secretion and aggregation
 - b) mucosal abnormalities in the gastrointestinal tract
 - c) use of heparin during hemodialysis sessionsd) all of the above
 - d) all of the above
- 7. Approximately how many times greater is the risk of hemorrhagic stroke in patients with ESRD than the general population?
 - a) 3 to 5
 - b) 7 to 10
 - c) 4 to 6
 - d) 10 to 20

- 8. Vascular calcification is a strong risk factor for:
 - a) stroke
 - b) bleeding
 - c) mortality
 - d) all of the above
- 9. When deciding to prescribe warfarin, clinicians should consider:
 - a) risk of bleeding
 - b) risk of stroke
 - c) patient compliance
 - d) all of the above
- 10. Which of the following factors would favour the initiation of warfarin?
 - a) history of calcified arteries
 - b) uncontrolled hypertension
 - c) recent gastrointestinal bleed
 - d) recent ischemic stroke

CONTINUING EDUCATION STUDY ANSWER FORM

CE: 2.0 HRS CONTINUING EDUCATION

Warfarin for stroke prevention in hemodialysis patients with non-valvular atrial fibrillation

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By Souzi Badr, Karen Cameron, and Marisa Battistella

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Palliative care in patients with advanced chronic kidney disease

By Betty Ann Wasylynuk, and Sara N. Davison

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ABSTRACT

The past five decades have shown a tremendous growth, world wide, in the number of patients with advanced chronic kidney disease (CKD). Patients with advanced CKD today are notably older, have significant comorbidity, substantial symptom burden and, ultimately, have high mortality. Subsequently, there is an increased global awareness of the need to integrate palliative care into routine kidney care to enhance the quality of life and death for patients with advanced CKD. This article outlines a conceptual framework for kidney palliative care for patients with advanced CKD and discusses issues such as symptom burden, illness trajectories, advance care planning, and complex decision-making, including decisions around the appropriate initiation, withholding and withdrawal of dialysis, and the potential palliative care roles and responsibilities for nursing staff within kidney care programs.

Over the past five decades there has been tremendous growth in the number of patients world wide with advanced chronic kidney disease (CKD) with a corresponding increase in the age and comorbidity of the typical dialysis patient. Dialysis, as a chronic treatment option for many of these patients, is associated with poor outcomes (USRDS, 2014). Integrating palliative care into routine kidney care has become essential to enhancing the quality of life and death for patients with advanced CKD. This article outlines a conceptual framework for kidney palliative care for patients with advanced CKD and discusses issues such as symptom burden, illness trajectories, and complex decision-making,

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including decisions around the appropriate initiation, withholding and withdrawal of dialysis, and the potential palliative care roles and responsibilities for nursing staff within kidney care programs.

THE UNIQUE FEATURES OF TODAY'S ADVANCED CKD PATIENTS

In parallel with an aging population, patients with advanced CKD (defined here as GFR category 4 and 5 [G4 and G5] CKD) and those starting chronic dialysis are older than ever before. In 2013, 53% of patients beginning renal replacement therapy (RRT), either dialysis or kidney transplantation, were age 65 and older; the highest rate being those patients age 75 or older (Canadian Organ Replacement Register [CORR], 2015). Patients with advanced CKD often have significant comorbidities, such as diabetes, hypertension and cardiovascular disease. Given the global epidemic of these chronic diseases, high comorbidity is not confined to elderly patients. The progression of these underlying chronic illnesses, along with their CKD, contributes to their high symptom burden, declining physical function and quality of life and, ultimately, high mortality. The annual mortality of patients on dialysis exceeds 20%. The unadjusted three-year survival rates for dialysis patients age 65-74 and 75 and older is 59.4% and 45.8% respectively (CORR, 2015). The illness trajectory for patients with advanced CKD is uncertain and unpredictable, thus making prognostication difficult. Subsequently, patients with advanced CKD, their loved ones and health care providers are often faced with difficult decisions around the appropriate initiation of dialysis versus non-dialysis care (conservative kidney care) and for timely transitions to palliative/end-of-life care, which, for some, may also include decisions to withdraw from dialysis should the treatment burden outweigh the benefit. With the increasing awareness of the need to integrate palliative care into routine kidney care, Kidney Disease Improving Global Outcomes (KDIGO), the global organization that develops and implements evidence-based clinical practice guidelines in kidney disease, has recently developed a roadmap to guide clinical and research activities that focuses on kidney palliative care as a means to improving the outcomes of people living with advanced CKD (Davison et al., 2015).

FRAMEWORK FOR KIDNEY PALLIATIVE CARE

Palliative care is "an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and



Figure 1.

impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual" (World Health Organization, 2002). Palliative care emphasizes the need for interventions early in the course of illness and addresses the needs of the whole person in the context of his/her social situation. It is care that can work alongside a life-sustaining therapy (such as dialysis), and recognizes the importance of the multidisciplinary kidney team and other specialties required to support the patient and their family through their entire illness trajectory. The aim of palliative care is to improve both the quality of life and death for patients.

A conceptual framework for kidney palliative care (Figure 1) is increasingly being implemented by kidney programs internationally to guide and support health care providers, patients and families throughout the patient's illness, from the time of CKD diagnosis through to terminal and bereavement care (Davison, 2011). The framework highlights the need to i) appropriately identify patients who are suffering (physically, emotionally or spiritually) so palliative care assessments and services can be offered, ii) identify patients who are at higher risk of early death so patients and their families are given the opportunity to engage meaningfully in advance care planning (ACP), to clarify goals of care, and to discuss treatment options best suited to meeting personal preferences, including the initiation of dialysis, conservative kidney care, and dialysis withdrawal, and iii) provide bereavement support.

IDENTIFYING PATIENTS MOST LIKELY TO BENEFIT FROM PALLIATIVE CARE

The success of any kidney palliative care initiative will depend, in part, on being able to identify in a timely manner patients most in need of palliative care services. While not all advanced CKD patients require palliative care, such as those with minimal comorbidity and symptom burden, most eventually embark on a clinical trajectory characterized by a decline in physical function, an increase in physical and psychosocial symptoms, and greater need for palliative care.

Symptom screening, assessment and management

Patients with advanced CKD tend to suffer complex clusters of physical, emotional and spiritual symptoms, which have a tremendous detrimental impact on their quality of life. For some, symptom burden may account for as much as 50% of their decrease in quality of life (Davison, 2011). Pruritus and pain are perhaps two of the most prevalent and troublesome symptoms experienced by advanced CKD patients, of which the causes are numerous. Pruritus is experienced by 41% of dialysis patients and is severe in 25% of dialysis patients (Davison et al., 2015). About 50% of dialysis patients suffer from chronic pain and about 82% will rate their pain to be of moderate-severe intensity (Davison, 2003). Patients with chronic pain are two to three times more likely to suffer from symptoms of depression and insomnia compared to patients without chronic pain (Davison & Jhangri, 2005). Unfortunately, symptoms in patients with advanced CKD are typically under-recognized and under-treated (Weisbord et al., 2005). For many patients, the priority in their care is to have symptom burden reduced and quality of life improved (Manns et al., 2014). Routine screening for symptoms is, therefore, a priority within the kidney palliative care framework, and nursing can play a key role in facilitating this.

The Edmonton Symptom Assessment System–Revised: Renal (ESAS-r: Renal) (Appendix A) is a modification of a cancer screening tool that added the symptoms of pruritus and insomnia, common symptoms experienced by advanced CKD patients. This is a reliable, valid, and useful means to screen for physical and emotional symptom burden, and is the most commonly used screening tool for advanced CKD patients in North America. Furthermore, it is a tool that is easy for nurses to use, causing minimal burden on staff and patients, and can be easily integrated into routine clinic practices. Additional screening for spiritual distress can be undertaken by having the nurse ask a simple question like "Are there some spiritual concerns you would like to address or discuss with a member of the health care team?" This can provide an opening to further discussion and trigger a more in-depth spiritual assessment if required (Davison, 2011).

Once patients have been identified, their symptoms must be assessed and managed appropriately. Clinical algorithms to manage specific symptoms such as pain, pruritus, and restless legs are becoming more widely used by nephrology programs, as the evidence for effective management strategies improves.

Risk stratification and management

Prognostication in advanced CKD remains a challenge and there are no clinical or research standards for predicting illness trajectories or survival. However, this is an area that has seen some recent advances and clinical tools are being developed to help identify patients at higher risk of early death. The Integrated Prognostic Model, developed by Cohen and colleagues, is one such tool (Cohen, Ruthazner, Moss, & Germain, 2010). The model integrates five variables associated with early mortality—age, serum albumin, history of dementia and peripheral vascular disease, and the surprise question, "Would you be surprised if this patient died in the next 12 months?", to predict six, 12-, and 18-month mortality. Only the six-month prediction has evidence for external validity. Independent of this prognostic tool, the surprise question is a simple and useful clinical tool that can be used by nephrologists and nurses to assess patients at higher risk for early mortality. The intent of the question is not to predict whether the patient will die in the next 12 months but, rather, to ask whether it is within the realm of likely possibility that the patient may die within this time. Patients for whom it would not be a surprise were 3.5 times more likely to die within one year (Moss et al., 2008).

For most advanced CKD patients, functional status deteriorates in the last year of life. Tools such as the modified Karnofsky Scale or Activities of Daily Living are additional simple and reliable ways for nurses to assess advanced CKD patients at higher risk for early death (Gill, Hardy, & Williams, 2002; Ifudo, Paul, Homel, & Friedman, 1998) and greater palliative care needs, and can be done with minimal staff and patient respondent burden.

Other factors are associated with a higher risk of early death. Patients with a primary kidney disease of a systemic cause (such as diabetic nephropathy or renovascular disease) have poorer survival rates (Ansell, Risdale, & Caskey, 2010). Late referrals (within three months of the patient's first dialysis treatment) have poorer survival rates, as these patients generally start dialysis i) in a sub-optimal health state (lower hemoglobin and albumin levels), ii) with a temporary access, and iii) having a longer initial hospitalization (Ansell et al., 2010). Advanced CKD patients identified as high risk for early death should be assessed for and offered palliative care services such as ACP, family/carer support, and community referrals, as required.

ADVANCE CARE PLANNING (ACP)

"Advance care planning is a process of reflection and communication in which a capable person makes decisions with respect to future health and/or personal care in the event that they become incapable of giving informed consent" (Health Canada, 2008). ACP involves naming a substitute decision maker, discussing goals of care, and specific decision-making (such as dialysis initiation, conservative kidney care, and dialysis withdrawal).

The unpredictable illness trajectory of advanced CKD clearly demonstrates the importance of introducing ACP early in the illness and ensuring that conversations between the patient, family and the kidney care team are ongoing. Patients are frequently faced with serious health events resulting in functional and/or cognitive impairments, changes in living arrangements (i.e., nursing home placement), increased symptom burden, and reduced quality of life. Moreover, these serious health events often precipitate the patient's end-oflife journey where important decisions such as withdrawal of dialysis need to be considered. Without prior discussions, these difficult decisions are left to family and the health care team with the patient often not receiving the end-of-life care they would have wanted (Miura et al., 2006), and outcomes they would have deemed unacceptable (Swidler, 2012) if they had been able to communicate their wishes.

ACP is not typically being integrated into routine kidney care despite the fact that patients feel ACP is important and expect the kidney care team to engage in these conversations (Davison, 2011). Nurses frequently have strong relationships with their patients and can play a vital role in ACP. Unfortunately, many lack the skill and confidence to have these conversations with patients and families. Some kidney care programs have started providing ACP training to their staff in the form of skill acquisition workshops, lunch-andlearns and/or online resources.

COMPLEX DECISION-MAKING

In view of the burden of dialysis and the high mortality rate, substantial symptom burden and poor outcomes for many patients with advanced CKD, it is important to ensure patients are provided with comprehensive, timely, and honest information about their treatment options. This information should include their prognosis and the benefits and risks of each treatment choice, so they can make an informed decision that best meets their individual needs, values, and preferences. Patients with advanced CKD have highlighted this discussion as a top priority in kidney care (Manns et al., 2014).

Ensuring that patients and their loved ones are part of the decision-making process is central to quality patient-centred care. There is evidence to suggest that patients may have little involvement in the decision to start dialysis (Russ & Kaufman, 2012) and many have indicated that their decision to start was primarily based on the wish of their physician or their family and later regret this decision (Davison, 2010). Furthermore, having patients make treatment choices before losing cognitive capacity is paramount. Unfortunately, there is evidence to suggest that most patients who withdraw from dialysis are not involved in the decision, as they no longer have decision-making capacity to make this decision (Sekkarie & Moss, 1998). The clinical practice guideline, *Shared Decision-Making in the Appropriate Initiation of and Withdrawal from Dialysis*, has been developed to assist nephrologists, patients, and families around the decision whether to initiate or withdraw from dialysis (Renal Physicians Association [RPA], 2010).

Initiation of dialysis

The goal for initiating dialysis is to prolong life and/or improve quality of life. However, the benefit of dialysis is very much dependent upon age, comorbid conditions and functional status (Schnell, DaSilva-Gane, & Germain, 2013). The survival advantage of dialysis may be lost for patients over the age of 75 with substantial comorbidity, particularly ischemic heart disease (Murtagh et al., 2007). Patients who are already frail or who have poor functional status, especially if elderly, typically deteriorate quite rapidly following the initiation of dialysis, (Tamura et al., 2009) and would likely do better with a more conservative approach to care without chronic dialysis.

Recent research suggests that patients are more likely to choose dialysis over conservative kidney care if it means life will be extended, and if they have flexible dialysis schedules and are eligible for subsidized transport. However, patients are less likely to choose dialysis if it means more hospital visits and more travel restrictions (Morton et al., 2012). In fact, patients were willing to forgo seven months of life expectancy if it meant less hospital visits, and 15 months if it meant increased ease to travel (Morton et al., 2012).

There may be situations where it may be medically inappropriate for patients to initiate dialysis. These could include situations where a patient i) has a non-renal terminal illness, ii) has severe irreversible cognitive impairment (dementia, persistent vegetative state), or iii) is unable to cooperate with the dialysis treatment (i.e., pulls out dialysis needles due to advanced dementia) (RPA, 2010).

Conservative kidney care

The goal for conservative kidney care is to maintain quality of life rather than quantity of life (Brunori, 2012). Conservative kidney care involves active disease management (treatment of anemia, bone disease, electrolyte disturbances) and aggressive palliative care without the option for dialysis (Davison, 2011). Choosing conservative kidney care does not mean imminent death. Many patients will remain stable for a long time, and will often maintain their functional status up until a few months before death, at which time there is a rapid deterioration (Kane, Vinen, & Murtagh, 2013). Evidence shows that it is easier for patients to choose conservative kidney care when they have access to multidisciplinary palliative care (Schnell, DaSilva-Gane, & Germain, 2013). Conservative care, therefore, may be more acceptable to patients who are unlikely to benefit from dialysis, allowing them to maintain a relatively acceptable quality of life.

Dialysis withdrawal

Withdrawal from dialysis, once considered a form of suicide, has now become an acceptable practice (Murtagh, Cohen, & Germain, 2007). In fact, it is one of the common causes of death and accounts for 20–25% of dialysis deaths in North America (USRDS, 2014). However, there may be spiritual, cultural and ethnic factors that the patient and their family have to consider before deciding to withdraw from dialysis (Murtagh et al., 2007).

Discussions about withdrawal from dialysis generally occur when it is felt by either the patient, family, or care team that the burden of dialysis outweighs the benefits. Such reasons or burdens can include extreme symptom burden, deteriorating functional status, or a new diagnosis affecting the person's quality of life. These decisions typically require in-depth dialogue amongst the kidney care team, including the patient and family. Nursing involvement can be particularly helpful with these discussions given the time spent and therapeutic relationships built with patients. Central to these discussions is developing a clear understanding of the reasons contributing to the decision to stop dialysis, exploring remedial measures that can be offered in attempts to resolve these reasons, and planning for appropriate end-of-life care, which includes exploring with the patient and/or family what defines a 'good death' for the patient. Furthermore, when a fully informed decision is made by a patient to withdraw from dialysis, it is important that the kidney care team respects this decision. Once the decision is made to stop dialysis, preparation for end-of-life care must be coordinated, and can include referral to hospice. Ideally this should occur before the patient's last treatment, since the average length of survival after hemodialysis withdrawal is eight to 10 days.

BEREAVEMENT SUPPORT

It is not uncommon for the kidney care team working with advanced CKD patients to develop strong relationships with patients and their families. Often they have followed these patients over the course of many years. For this reason, when a patient dies, the death not only affects the patient's loved-ones, but also the kidney care team and potentially other patients who have formed relationships with the patient over the years. Providing support to the bereaved is an essential component in palliative care and is usually facilitated by chaplains or social workers. It can include activities such as sending sympathy cards or letters to the family, telephone calls to the family, attendance at the funeral, posting obituaries on a memorial board, placing a flower in the chair where the patient use to dialyze, debriefing sessions for staff, bereavement information, and hosting an annual memorial service for patients who have died over the past year (Tranter, Anastasiou, Bazzi, Burges, & Josland, 2013). Bereavement support provides the necessary conclusion to quality palliative care.

SUMMARY

Today's patients with advance CKD are notably older and have greater comorbidity, substantial symptom burden, and poorer survival, necessitating the integration of quality palliative care with routine kidney care. Adopting a conceptualized palliative care framework, as outlined in this article, will improve outcomes for patients with advanced CKD, including their quality of life and death.

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Depression in patients with chronic kidney disease

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ABSTRACT

Chronic kidney disease affects 10 per cent of the general population. A number of studies over the last decade have established that there is a higher prevalence of depression amongst those with chronic kidney disease (CKD). Biological, psychological and socio-economic factors influence the higher prevalence of depression in this population. The complex interplay between bio-psycho-social factors helps explain the bidirectional relationship between progress of CKD and depression. We summarize the prevalence and etiology of depression in those suffering from CKD and describe in brief the impact of depression in CKD on outcomes such as mortality and morbidity, as well as the different management options that are available. The purpose of this article is to provide a summarized and clinically applicable update on depression for nurses, which will assist them in recognizing and seeking treatment for depression, as well as highlight what is already being done and what needs to be done in terms of recognition and treatment of this common psychiatric condition.

INTRODUCTION

Psychological health is an integral part of well being and quality of life of individuals suffering from a chronic, potentially life-threatening illness including chronic kidney disease (CKD). Numerous domains play a part in psychological well-being, including the individual's satisfaction with life, affective state and sense of control, achievement of goals, cultural and personal belief systems, cognitive functioning, social support and symptom management. Chronic and serious illness generates an illness experience that involves facing what the disease brings with it (symptoms, functional impairment, emotional difficulty), dilemma of how to adjust with these changes, and dealing with a variety of losses and the search for meaning of life.

Unlike other potentially life-threatening conditions such as cancer or cardiovascular disease, patients diagnosed with renal disease often have little awareness of the presence, nature and prognosis of the condition (Platinga et al., 2008; Saab, Whaley-Connell, McCullough, & Bakris, 2008; Whaley-Connell, 2012). Lack of awareness, absence of any noticeable symptoms, and one's tendency to not want to dwell on ill health reminders usually results in denial or non-acceptance of the condition in the early stages (Kaltosouda et al., 2011; Williams et al., 2009). This phenomenon is often seen in pre-dialysis or renal management clinics. Effective early stage management can delay the progression of renal disease, but may prove challenging due to the above. The late stage of CKD or end stage renal disease (ESRD) is often heralded by the onset of disturbing physical symptoms (including pain, fatigue, sleep disruption), loss of functionality and also requires difficult decision-making regarding modality choice and other aspects of illness management, which results in deterioration in quality of life. When it comes making a choice of modality of treatment, the different options available in the form of renal replacement therapy (peritoneal dialysis, in-centre hemodialysis, home hemodialysis, kidney transplant) or conservative care are complex choices for patients, their families and the clinical team. Although renal transplant perhaps sounds like the treatment of choice clinically for many patients, it is more of a theoretical option in most cases due to limited availability of cadaver donors, unless there is a readily available living donor. Once renal replacement therapy begins in the form of dialysis, the change in functionality, increase in dependence and the "shock" of the demands of the process itself takes its toll, impacting the individual's quality of life as influenced by their symptoms, psychosocial problems and spiritual needs (Kimmel, 2003).

MENTAL HEALTH PROBLEMS IN PATIENTS WITH CKD

As the management of CKD shifts from optimizing quantitative and clinical aspects such as blood parameters, blood pressure and survival to qualitative aspects such as quality of life, emotional well being, symptom management and functioning, the care of CKD patients has become increasingly multidisciplinary. This also raises the issue of managing aspects of mental health and mental illness in CKD. Mental disorders including, but not restricted to mood disorders and anxiety disorders have a higher prevalence in patient with ESRD, as compared to the general population (Cukor et al., 2008; De Santo, Perna, Di Iorio, & Cirillo, 2010; Hedayati, Minhajuddin, Toto, Morris, & Rush 2009; Mucsi et al., 2005; Novak et al., 2006; Novak, Shapiro, Mendelssohn, & Musci, 2006). In the paragraphs below, we look at commonly occurring mental disorders in this population.

Major Depressive Disorder is defined by the Diagnostic and Statistical Manual of Mental Disorder, fifth edition (DSM-5) (American Psychiatric Association, 2013), as the presence of five or more of symptoms of depression with at least one of the symptoms being either depressed mood or loss of pleasure or interest. These include persistent depressed mood, loss of interest or pleasure, fatigue, significant change in appetite or weight, psychomotor agitation or retardation, sleep disturbance (insomnia or hypersomnia), feelings of worthlessness or inappropriate guilt, decreased ability to think/concentrate/ make decisions and recurrent thoughts of death/suicide or attempts/plans for committing suicide. Although this contributes to the definition of major depressive disorder, which can then have different specifiers based on the severity or other symptoms, depression in the context of our discussion of depressive disorders in the CKD population is not limited to major depressive disorder and also includes depressive symptoms not amounting to a diagnosis of major depressive disorder such as dysthymic disorder (low grade chronic depressive illness), depressive disorder not otherwise specified, or mood disorder due to a general medical condition (e.g., ESRD).

PREVALENCE OF DEPRESSION IN CKD

Depression and anxiety disorders are the most common psychiatric diagnoses in CKD (Hedayati et al., 2009; Kimmel, 2001). Although there is abundant literature on depression in CKD research, recognizing and treating it in clinical practice remains limited (Lopes et al., 2004) with most studies being cross-sectional rather longitudinal studies. A recent comprehensive review studying the point prevalence of depression across the CKD spectrum reports a high prevalence of both depressive symptoms and clinical depression in this population (Palmer et al., 2013). Notably, one third of patients on dialysis experience depressive symptoms when measured using clinician or patient-reported screening tools and one fourth experience clinical depression when diagnosed using a clinical interview (Palmer et al., 2013). This study showed that the pooled prevalence of depression in advanced CKD patients on dialysis (39.3%) is higher than the prevalence in CKD1-5 (pre-dialysis) patients not on dialysis (26.5%) and renal transplant patients (26.6%) when it is measured using screening tools (Palmer et al., 2013). When the prevalence reported using clinical interviews was assessed, the prevalence in the dialysis group reduced to 22.8%, similar to that found in CKD 1-5 population (21.4%) and lower than that in renal transplant population (25.7%) (Palmer et al., 2013). However, on meta-analysis there was a moderate to high level of heterogeneity amongst the studies in dialysis. In addition, data from studies on CKD 1-5 and renal transplant population was less robust, as the number of studies in these populations was sparse (Novak et al., 2010). These findings suggest that although the prevalence of depression is significantly higher in the CKD population (similar to findings in other chronic illnesses such as cardiovascular disease, cancer and diabetes), there is a higher chance of over-diagnosing depression when using screening tools, as compared to clinical interview (Hedayati, Bosworth, Kuchibhatla, Kimmel, & Szczech, 2006; Hedayati, Minhajuddin, Toto, Morris, & Rush, 2009; Palmer et al., 2013). This problem possibly arises due to the shared symptoms of depression and CKD (as well as potentially sleep apnea, which is also very prevalent), such as fatigue, sleep disturbance, and cognitive difficulties. It has been proposed

that psychological symptoms of depression (depressed mood, hopelessness, and suicidality) are the key to differentiate depressed from non-depressed patients (Kimmel, 2001). This finding also indicates that there is a greater need for interview-based and longitudinal assessments for depression and, consequently, a role for mental health clinicians in nephrology and training multidisciplinary teams in nephrology to address mental health issues.

ETIOLOGY OF DEPRESSION

Why is depression so common in individuals suffering from CKD? The etiology of depressive symptoms in the CKD population should be looked at from the biological, psychological, social and spiritual/existential perspective. As ESRD develops and the patient needs dialysis, it results in a number of life changes. This includes loss of organ function, work, family role, physical strength, sexual function and cognitive abilities. This reinforces the concept of 'loss', which is linked to depression (Zalai, Szeifert, & Novak, 2012). In addition, the physiological changes and the debilitating symptoms of the chronic condition along with the stress of dealing with the disease itself place the individual at a higher risk of developing or exacerbation of depression, especially when the patient had a history or family history of mood disorder. Although it can be assumed that in those with ESRD depression may be a response to adjustment to the intense medical treatment, many become depressed after the first year of renal replacement therapy. This suggests that it may be the chronic, unremitting nature of the illness and the 'never-ending' treatment that continues to be very challenging for patients (Kimmel, 2001). Biological factors including immune system dysregulation, dysregulation of the hypothalamic pituitary axis and the pro-inflammatory state of CKD also increase the risk of depression in this population (Bautovich, Katz, Smith, Loo, & Harvey, 2014). This is in addition to the other major risk factors for mental illness such as socio-economic adversity and adverse childhood experiences.

THE IMPACT OF DEPRESSIVE SYMPTOMS ON MORTALITY AND OTHER CLINICAL OUTCOMES

Co-existing depression and CKD brings with many disadvantages. Depressed individuals with CKD and ESRD have increased morbidity, hospitalization and mortality, as compared to non-depressed patients with CKD (Boulware et al., 2006; Kellerman, Christensen, Baldwin, & Lawton, 2010; Lopes et al., 2002; Novak et al., 2010; Palmer et al., 2013; Tsai et al., 2012). Tsai et al. (2012) in their longitudinal follow-up study of 428 pre-dialysis CKD patients found that those with a higher depressive symptom burden at baseline (BDI, Beck Depression Inventory score >11) were more likely to reach the end point of ESRD or death by the end of the follow-up (25.2+/-11.9 months), as compared to those with a lower BDI score (adjusted hazard ratio of 1.6). Similarly, those with more depressive symptoms also had a faster decline in their estimated glomerular filtration rate (eGFR), more hospitalization and were more likely to start dialysis at a higher eGFR (Tsai et al., 2012). Kellerman and colleagues (2010) followed up early CKD patients over a period of 81.2 months and found that those with higher number non-somatic symptoms of depression were more likely (~21.4%) to die than those with lower non-somatic depressive symptom burden after controlling for clinical and demographic variables, indicating that depression independently increased mortality in CKD patient population (Kellerman et al., 2010). The findings of these individual studies have been confirmed by a more recent meta-analysis, which shows a strong association between depression and allcause mortality at a relative risk of 1.59 with moderate levels of heterogeneity in the studies included in the meta-analysis (Palmer et al., 2013). These findings were consistent when adjusted for stage of CKD, length of dialysis, method used to diagnose depression and point in time when depression was assessed. However, this association was weaker when studies controlling for cardiovascular disease were taken into consideration and the analysis did not have enough data to report how management or severity of depression impacted on this association (Palmer et al., 2013). In addition, depressed CKD patients display poorer compliance with prescribed medications, dialysis regimens, and have poorer quality of life, which ultimately results in higher utilization of health care resources and the increase in mortality and morbidity reported (Kimmel, Cohen, & Peterson, 2008; Palmer et al., 2013). A more recent prospective cohort study in Taiwan (Chiang et al., 2015) that followed up a cohort of CKD patients for three years reported that depressive symptoms at baseline were predictors of greater mortality or increased progression to dialysis.

TREATMENT OF DEPRESSION IN CKD

Treatment of depression may impact on the progress of CKD (Cohen, Norris, Acquaviva, Peterson, & Kimmel, 2007). The comprehensive approach to treating depressive illness is by using a bio-psycho-social approach, which includes addressing modifiable precipitating and maintaining factors, psychotherapeutic interventions and psychopharmacological management.

COGNITIVE BEHAVIOUR THERAPY

Cognitive behavioural therapy (CBT) is amongst the most effective and commonly used evidence-based psychotherapies for the treatment of depression, both in those with and without chronic medical illness. Simplistically, it is usually described as a form of talk therapy that helps understand and, hence, address how psychiatric illness such as depression is maintained by the link between an individual's thoughts, emotions and behaviours. Psychotherapy for depression in the form of chair-side individual CBT during hemodialysis (Cukor et al., 2014), or group CBT for hemodialysis patients (Duarte, Miyazaki, Blay, & Sesso 2009) has shown benefits.

In a cross-over randomized controlled trial of individual chair-side CBT, there was a significant improvement in depression scores, as measured on the Beck Depression Inventory (from moderate severity to below cut-off for clinical depression), Hamilton Rating Scale for Depression (improvement to below cut-off for remission) and Structured Clinical Interview for DSM Disorders-1 (a remission rate of 90% on the SCID-1) in the treatment arm, as compared to the wait-list or control arm along with a significant improvement in quality of life and fluid compliance (Cukor et al., 2014). The latter improvement in fluid compliance did not last beyond treatment. Group CBT also demonstrated benefits in reducing depressive symptoms (by 40% in BDI scores and 70% in MINI scores), improving quality of life (measure by the Kidney Disease Quality of Life scale) and a reduction in suicidality in the treatment arm compared to the control arm (Duarte et al., 2009). These benefits were maintained on six-month follow-up. Although both the studies do not have a large sample sizes and there are other limitations typical of an RCT, they are, nevertheless, novel studies reporting the effectiveness of a psychological intervention in treating depression in the ESRD population.

INTERPERSONAL PSYCHOTHERAPY

Interpersonal psychotherapy (IPT) is another effective, evidence-based, time-limited psychotherapeutic intervention that is a recommended treatment for depression in general (Weissman, Markowitz, & Klerman, 2000). IPT focuses on an individual's current interpersonal functioning and life circumstances that could be contributing to the depression. IPT involves identifying one of four problem areas that are contributing to the patient's depression, which include interpersonal deficits, role transition, grief and interpersonal conflict, or focus areas that are highly prevalent in those with chronic kidney disease. Literature exploring the effectiveness of IPT in chronic medical conditions is sparse (Chan, 2005; Poleshuck et al., 2010).

Individuals with ESRD, especially those on renal replacement therapy, come across significant grief situations including loss of friends/peers they have befriended in the dialysis unit, and they also face their own mortality. Interpersonal disputes often arise within family or other social settings with changes in an individual's health status, their ability to self-care and increasing dependency on caregivers. An inability of family members to adapt to the individual's needs and lack of awareness of the impact of renal disease on the individual's ability often results in conflict and disputes where expectations are not met. Coping with the illness and its demands, change in functioning, and change of role within the family and social setting leads to a significant role transition. The chronicity of the condition, amount of time spent in hospital and loss of opportunities to socialize with peers and family again results in social isolation.

As noted above, all the problem areas discussed above can exist in those with CKD, especially ESRD and perhaps to an even greater extent, as compared to the physically healthy or other chronic medical conditions such as cancer or chronic pain. In our clinical practice, this modality of brief time-limited psychotherapy has shown promise, although there are no studies reporting the effectiveness of this approach in nephrology patients.

In addition, we have observed that treating depressive symptoms responds positively to basic interventions such as general counselling, educating patients about the psychiatric symptoms they are experiencing and normalizing their experience. Simple supportive advice such as drawing from social supports, building up of social support where deficient through community involvement/religious organizations/ support groups, assisting patients in expressing their symptoms, addressing caregiver burnout and, above all, offering a listening ear has provided relief to many patients in our experience, without the use of any specific structured psychotherapeutic interventions. Patients also benefit from various stress management programs, including mindfulness-based interventions and behavioural approaches such as breathing training programs (Gross et al., 2010; Tsai et al., 2015). Other behavioural and lifestyle interventions such as exercise therapy have also shown benefit (Greenwood et al., 2012; Ouzouni, Duarte, Miyazaki, Blay, & Sesso, 2009).

PHARMACOTHERAPY

A recent systematic review has attempted to address the use of antidepressants in the CKD population and has recommended that selective serotonin reuptake inhibitors be used as first-line pharmacotherapy for major depression of at least moderate severity (Nagler, Webster, Vanholder, & Zoccali, 2012). The main findings were that the elimination t1/2 and/ or clearance of antidepressants was reduced in CKD patients with dosage adjustments required for venlafaxine, desvenlafaxine, bupropion, selegeline, milnacipran, reboxetine and amitriptyline. The paper also identified that there is a lack of systematic and high-quality research evaluating the safety and efficacy of antidepressants in this population. Selective serotonin reuptake inhibitors are the most commonly prescribed class of antidepressants and this group includes citalopram, escitalopram, sertraline, fluoxetine and paroxetine amongst others. Considering pharmacological interactions,

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CONCLUSION

Depressive symptoms, depressive disorder and other mood states (including hopelessness and demoralization) are common symptoms in patients with CKD. We need to develop a holistic approach to treating mental health issues in patients with CKD and ESRD, since many physical symptoms, psychological, social and existential aspects contribute to the development of depression. Patients do value their relationship with their nurses to a great extent. Nurses are in a unique position to develop a long-term supportive relationship with the patients that is essential both in recognizing symptoms of depression and providing firstline support for the patients to cope with illness. Routine use of screening tools can be helpful in the assessment and stepped care provided by a mental health nurse, social worker and psychologist, psychiatrist affiliated with the dialysis unit and pre-dialysis clinic would be a good model of comprehensive care. Nurses might find it beneficial to obtain further training in enhancing communication skills, motivational interviewing and basics in problem-solving and behavioural interventions so they could feel better equipped when treating patients with chronic conditions.

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Form: The manuscript should be typed double-spaced, one-inch margins should be used throughout, and the pages should be numbered consecutively in the upper right-hand corner. More formal research or clinical articles should be between five and 15 pages. Less formal narratives, question and answer columns, or reviews should be fewer than five pages.

Style: The style of the manuscript should be based on the **Publication Manual of the American Psychological Association (APA),** Sixth Edition (2009), available from most college bookstores.

Title page: The title page should contain the manuscript title, each author's name (including full first name), professional qualifications [e.g., RN, BScN, CNeph(C)], position, place of employment, address, telephone, fax numbers and email address. The preferred address for correspondence should be indicated.

Abstract: On a separate page, formal research or clinical articles should have an abstract of 100 to 150 words. The abstract should summarize the main points in the manuscript.

Text: Proper names should be spelled out the first time they are used with the abbreviation following in brackets, for example, the Canadian Association of Nephrology Nurses and Technologists (CANNT). Generic drug names should be used. Measurements are to be in Standards International (SI) units. References should be cited in the text using APA format. A reference list containing the full citation of all references used in the manuscript must follow the text.

Tables/Figures: Manuscripts should only include those tables or figures that serve to clarify details. Authors using previously published tables and figures must include written permission from the original publisher. Such permission must be attached to the submitted manuscript.

How should the manuscript be submitted?

Email your manuscript to: cannt.journal1@gmail.com or cannt.journal2@gmail.com

Include a covering letter with contact information for the primary author and a one-sentence biographical sketch (credentials, current job title and location) for each author.

How are manuscripts selected for the CANNT Journal?

Each manuscript will be acknowledged following receipt. Research and clinical articles are sent out to two members of the **CANNT Journal** manuscript review panel to be reviewed in a double-blind review process. All manuscripts may be returned for revision and resubmission. Those manuscripts accepted for publication are subject to copy editing; however, the author will have an opportunity to approve editorial changes to the manuscript. The criteria for acceptance for all articles include originality of ideas, timeliness of the topic, quality of the material, and appeal to the readership. Authors should note that manuscripts will be considered for publication on the condition that they are submitted solely to the **CANNT Journal.** Upon acceptance of submitted material, the author(s) transfer copyright ownership to CANNT. Material may not be reproduced without written permission of CANNT. Statements and opinions contained within the work remain the responsibility of the author(s). The editor reserves the right to accept or reject manuscripts.

Checklist for authors

\checkmark Cover letter

✓ Article

- Title page to include the following:
 - title of article
 - each author's name (including full first name)
 - professional qualifications
 - position
 - place of employment
 - author to whom correspondence is to be sent, including address, phone, fax number, and email address
- Text of article, with abstract if applicable, double-spaced, pages numbered
- References (on a separate sheet)
- Tables (one per page)
- Illustrations (one per page)
- Letters of permission to reproduce previously published material.

Lignes directrices à l'intention des auteurs

Le Journal de l'Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN) vous invite à faire parvenir articles, textes et manuscrits originaux pour publication dans son journal trimestriel. Nous sommes heureux d'accepter vos documents soumis dans l'une ou l'autre des langues officielles, anglais ou français.

Quels sont les sujets d'article appropriés?

Nous acceptons les articles portant sur des manuscrits récemment publiés, des activités de l'Association ou tout sujet d'intérêt pour les membres de l'ACITN.

Quels types de manuscrits conviennent à la publication?

Nous préférons des manuscrits qui présentent de nouveaux renseignements cliniques ou qui traitent des enjeux propres aux champs d'intérêt des infirmières et infirmiers et des technologues en néphrologie. Nous recherchons plus particulièrement: • Exposés de recherche originaux

- Articles cliniques pertinents
- Rapports sur des approches innovatrices en matière d'amélioration de la qualité
- Textes narratifs relatant une expérience de pratique infirmière ou technologique
- Textes sous forme de questions et de réponses sur la pratique interdisciplinaire
- Revues d'articles courants, de livres et films
- Articles en éducation continue.

Comment les manuscrits doivent-ils être présentés?

Forme : Le manuscrit doit être présenté à double interligne avec une marge de 1 po et une numérotation consécutive des pages dans le coin supérieur droit de la page. Les articles plus formels de recherche ou d'études cliniques doivent compter de 5 à 15 pages. Les articles moins formels, tels que textes narratifs, questions-réponses ou revues, doivent compter moins de 5 pages.

Style: Le style du manuscrit doit être conforme au manuel de publication de l'Association américaine de psychologie (AAP), 6^{e} édition (2009), offert dans la plupart des librairies universitaires.

Page titre : La page titre doit inclure le titre du manuscrit ainsi que les renseignements suivants : nom de chacun des auteurs (incluant prénoms au complet), titres professionnels (c.-à-d., inf., B.Sc. Inf., CNéph[C]), titre du poste occupé, nom de l'employeur, adresse, numéros de téléphone et de télécopieur et adresse courriel. L'adresse privilégiée de correspondance doit aussi être indiquée.

Résumé : Sur une page distincte, les articles formels de recherche ou d'études cliniques doivent être accompagnés d'un résumé de 100 à 150 mots, reprenant brièvement les principaux points du manuscrit.

Texte : Les sigles, abréviations ou acronymes doivent être écrits au long la première fois qu'ils apparaissent dans le texte, suivis de l'abréviation entre parenthèses; p. ex., Association canadienne des infirmières et infirmiers et des technologues de néphrologie (ACITN). Les noms génériques des médicaments doivent être employés. Les unités de mesure doivent être indiquées selon le Système international d'unités (SI). Les références doivent être citées dans le texte en utilisant le format de l'AAP. Une liste de références comprenant la bibliographie complète de toutes les références utilisées doit suivre le texte.

Tableaux/Figures : Les manuscrits ne doivent inclure que les tableaux et figures (incluant schémas, illustrations, croquis, etc.) visant à clarifier certains détails. Les auteurs qui utilisent des tableaux et des figures qui ont déjà fait l'objet d'une publication doivent fournir l'autorisation écrite de l'éditeur d'origine et la joindre au manuscrit soumis.

De quelle manière doit-on soumettre les manuscrits? Veuillez envoyer par courriel votre manuscrit à :

cannt.journal1@gmail.com ou **cannt.journal2@gmail.com** Veuillez inclure une lettre de présentation en précisant les coordonnées de l'auteur principal ainsi qu'une notice biographique d'une phrase (incluant titres de compétences, titre du poste actuel et lieu de travail) pour chaque auteur.

Quel est le processus de sélection des manuscrits pour publication dans le Journal de l'ACITN?

À la réception de chaque manuscrit, un accusé de réception est envoyé. Les articles de recherche et d'études cliniques sont envoyés à deux membres du comité de révision du **Journal de l'ACITN** afin d'être révisés suivant un processus à double insu. Tous les articles peuvent être retournés aux auteurs pour révision et nouvelle soumission par la suite. Les manuscrits acceptés pour publication peuvent subir des changements éditoriaux; toutefois, les auteurs pourront approuver ces changements. Les critères d'acceptation pour tous les manuscrits comprennent l'originalité des idées, l'actualité du sujet, la qualité du matériel et l'attrait des lecteurs.

Les auteurs doivent prendre note que les manuscrits seront considérés pour publication à la condition qu'ils ne soient soumis qu'au **Journal de l'ACITN**. Sur acceptation du matériel soumis, les auteurs transfèrent leur droit d'auteur à l'ACITN. Aucune reproduction n'est permise sans l'autorisation écrite du **Journal de l'ACITN**. Les déclarations et opinions émises par les auteurs dans leurs articles, textes ou manuscrits demeurent leur responsabilité. La rédactrice en chef se réserve le droit d'accepter ou de refuser tout manuscrit.

Aide-mémoire à l'intention des auteurs

- ✓ Lettre de présentation
- 🗸 Article
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- Titre de l'article
- Nom de chaque auteur (incluant prénoms au complet)
- Titres de compétences
- Titre du poste actuel
- Nom et adresse de l'employeur
- Nom de l'auteur à qui la correspondance doit être envoyée (incluant adresse, numéros de téléphone et de télécopieur et adresse courriel)
- Texte de l'article avec résumé, s'il y a lieu à **double** interligne et pages numérotées
- Références (sur une feuille distincte)
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