

Practice Development in the Hospital Haemodialysis Unit: Improving Calcium and Phosphate Management

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Abstract

Practice development (PD) is a relatively new approach to change in health care. PD provides nurses with the opportunity to explore their practice with the support of an experienced facilitator. This paper introduces the concept of PD and this explanation is augmented by the experience of PD within a hospital haemodialysis unit (HHU). In the HHU the method is routinely utilised to evolve clinical nursing practice. There are a number of PD projects ongoing within the unit and the management of calcium and phosphate is highlighted in this paper as an example of the work being conducted.

A review of calcium and phosphate levels for patients receiving hospital haemodialysis revealed that a significant number were falling outside the recommended CARI (Caring for Australians with Renal Impairment) ranges. A group of interested nurses, under the facilitation of the nurse consultant, formed a PD group to identify processes by which the results could be improved. The activities of this group included a comprehensive review of the literature, an improvement in the knowledge level of nurses and a calcium and phosphate management protocol.

This PD project has attempted to correct a shortcoming in the delivery of care to patients requiring hospital haemodialysis. Nurses have taken on the challenge and developed resources and protocols to better manage this aspect of chronic dialysis care. The initiatives have only recently been introduced and the outcomes of the work have not yet been evaluated. The PD processes have resulted in a shift in the culture within the HHU to one in which nurses are continually examining their practice in view of providing the best possible patient centred care.

Introduction

This paper highlights practice development (PD) work undertaken by nurses in the Hospital Haemodialysis Unit (HHU) at St George Hospital,

Sydney. A brief overview of PD is provided and the management of calcium and phosphate is presented as an example of the work currently being conducted.

Key Words

practice development, change, calcium and phosphate management, hospital haemodialysis

What is practice development?

Practice development has become widely accepted as an effective initiative in change in health care. The PD movement has arisen out of efforts to modernise the National Health Care Service in Britain. As a result, much of the work published regarding PD has emanated from the United Kingdom. Within the literature there seems to be a lack of clarity regarding what PD involves. The need to clarify the concept of PD was the impetus for a major study by Garbett and McCormack (2002). The three-stage study aimed to describe the foci of PD work and the approaches used in addition to the development of a framework to help clarify and focus the work for those who engage in PD. The following comprehensive definition clarifies the concept of PD:

“Practice development is a continuous process of improvement towards increased effectiveness in patient centred care. This is brought about by helping health care teams to develop their knowledge and skills and to transform the culture and context of care. It is enabled and supported by facilitators committed to systematic,

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rigorous continuous process of emancipatory change that reflects the perspectives of service users" (Garbett & McCormack, 2002, 88).

The key purpose of PD is to transform the culture of care so that it becomes and remains patient centred and evidence based. The literature reports a number of instances where PD has been used successfully to achieve this goal. Wright and McCormack (2001) used PD as an approach to working with older people in an effort to improve patient care provision and to develop a new key facilitator role. The major practice initiatives focused on changes to the routines and rituals of the ward. The outcome of the project was that registered nurses developed their skills and knowledge in clinical leadership and nursing care moved away from only meeting the physical needs of the patients, to a more individualised approach to patient care (Wright & McCormack, 2001). Wilson and Keachie (2003) report on PD within a special care nursery in Australia. A PD facilitator worked with nurses on a number of PD projects with the aim of improving the care delivered to patients and their families. There does not seem to be any evidence in the nursing literature of PD being used in a dialysis setting.

The success of PD hinges on the abilities of the facilitator. Simply the facilitator role is about supporting people to change their practice (Harvey et al, 2002). There is evidence to support the nurse consultant role as an ideal PD facilitator (Manley, 2000b, 2000a, 1997). Manley (1997) suggests that transformational leadership combined with clinical expertise is essential to practice change. The nurse consultant has an understanding of the real context in which patient care takes place. The major contribution the facilitator can make is to develop a sustainable process which fosters a culture where the

integration of evidence based practice is everyday (Dewing & Reid, 2003).

There are two approaches to facilitation – the technical (task) and the emancipatory (holistic) approach (Manley & McCormack, 2003). The aim of the technical approach is to achieve a goal or task. When working in the technical mode of facilitation the facilitator is seen as the expert and it is usually the ideas of the facilitator that are being worked on by the group. To achieve emancipatory PD (EPD) the facilitator works differently. EPD focuses on the social system as well as the individual practice of the group members (Manley & McCormack, 2003). The overall aim of the emancipatory approach is to enable individuals and teams to become empowered to develop a transformational culture in their individual and collective service that can nurture and sustain the development of a particular goal or task.

Rather than viewing technical and emancipatory facilitation styles as being different, the PD work conducted in the HHU integrated the technical with the EPD approach and this will be explained in the following section of the paper.

Practice development in the HHU

The St George HHU comprises 34 machines and provides dialysis for over 130 patients each week. The nursing staff consists of both registered nurses (RN)s and enrolled nurses (EN)s with varying levels of experience in nursing and dialysis management, some with clinical nurse specialist status. The model of service provision is termed primary nursing where each full time RN case manages five to six patients.

The clinical nurse consultant (CNC), who is experienced in conducting practice development, facilitates the PD work in the HHU. The overall aim of the PD

work is to move the practice in the HHU from one of machine and dialysis focused care to one where holistic management of the patient is undertaken. The process of conducting PD with nurses has also developed their capacity to become more involved in decision-making concerning patient care. After two years of PD work there has been a shift in the way nursing is practised and a number of changes have been made. There are currently four PD groups meeting monthly and the calcium and phosphate management group is highlighted in this paper as an example of the work being conducted.

The impetus for PD work on calcium and phosphate management was a routine six monthly audit of the biochemistry of patients on the hospital haemodialysis program. The audits are benchmarked against prior results and CARI (Caring for Australians with Renal Impairment) Guidelines (CARI, 2005). The results have constantly fallen short of the minimum standards CARI recommend. Previous attempts to change patient anaemia and iron management by nurses resulted in significant improvements to patient health. Therefore, a group of interested nurses decided to investigate initiatives which they could implement to improve calcium and phosphate management.

Practice development and calcium and phosphate management

The calcium and phosphate management group (CPMG) comprises the CNC, Quality Assurance/Research Nurse, Clinical Nurse Educator (CNE) and three Clinical Nurse Specialists. Participation in the CPMG is voluntary and the first meeting took place in July 2005. At that time the CARI Guidelines recommended corrected calcium levels of 2.2 – 2.6 mmol/L, phosphate levels of ≤ 1.8 mmol/L and a calcium/phosphate product of ≤ 4.2 (CARI, 2005). As discussed, an

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audit of our patients' blood results over the previous two years showed that a significant number were falling outside the recommended ranges. Seventy eight percent of results for corrected calcium fell within the recommended range and 16% were >2.6 mmol/L (table 1). Only 61% of patients fell below the phosphate target of ≤ 1.8 mmol/L (table 2) and only 53% of patients had calcium/phosphate product results within the required range of ≤ 4.2 (table 3).

The CPMG identified three processes by which the results could be improved: nurse education, a nurse initiated calcium phosphate management protocol and improved patient education. Nurse education was identified as the first priority believing that the management of calcium and phosphate levels could not improve until nursing staff had a firm understanding of the physiological processes involved. The CPMG conducted an extensive search for current information on the topic. The search included journal databases and published clinical guidelines. Calcium and phosphate protocols from other units within Australia and New Zealand were also sought. With this information the group worked together to provide inservices and produce a learning package for RNs. The objectives of the educational processes were for RNs to be able to:

- Understand renal bone disease;
- Identify renal bone disease and clinical manifestations in dialysis patients;
- Be cognisant of the targets set by the CARI Guidelines for corrected calcium, calcium and phosphate, PTH and calcium and phosphate product;
- Interpret blood tests and identify levels outside protocol range for medical review;

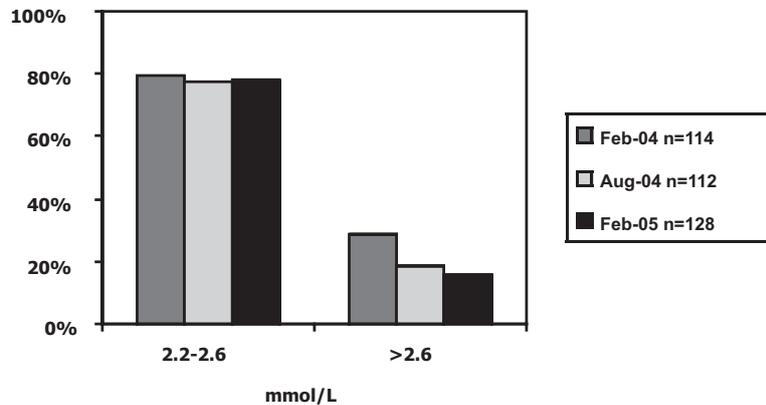


Table 1 Corrected calcium results for patients receiving hospital haemodialysis

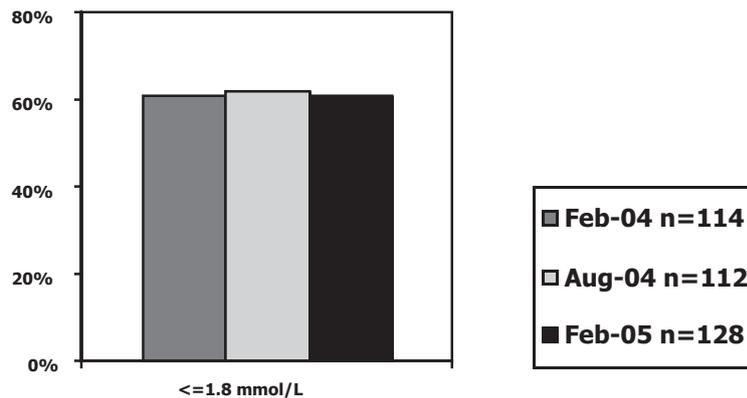


Table 2 Serum phosphate levels for patients receiving hospital haemodialysis

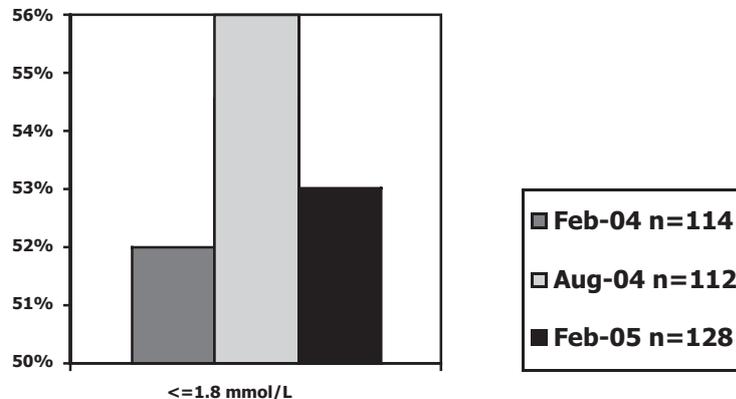


Table 3 Calcium phosphate product results for patients receiving hospital haemodialysis

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- Assist in the management of the patient's serum calcium post parathyroidectomy.
- Troubleshoot calcium and phosphate abnormalities utilising patient education strategies:
- Initiate proactive referral to medical officer and dietician.

The learning package contained theoretical information, learning activities and reflective questions. Each member of the group developed a different section of the package that was eventually edited and combined. All nurses were required to complete the learning activities and an 'open book' test for successful completion of the learning package.

Trials were carried out with six nursing staff chosen to represent different levels of experience within the HHU. Small corrections were made following this trial. The learning package was introduced to all RNs across the HHU in July 2006, with the support of the CNE. Completion was mandatory and a certificate was awarded to nurses as they achieved mastery. Remedial assistance, consisting of individualised education and support from the CNE, was given to nurses who had difficulty completing the package.

A nurse initiated calcium phosphate management protocol was the next priority. A flow chart was devised and ratified by the medical staff. This flow chart guides nurses in decisions about calcium and phosphate management and alerts the nurse to situations which require medical intervention. Patient education resources have also been sourced and the CPMG is currently developing unit specific fact sheets and posters to be used in patient education.

Since the start of this project the CARI Guidelines have been updated and the targets are more stringent. Corrected calcium levels of 2.1 – 2.4mmol/L, serum phosphate levels of 0.8 – 1.6mmol/L

and a calcium phosphate product of less than 4 are now recommended (CARI, 2006). Therefore the PD project is timely and we hope our efforts will be reflected in improved results at the next audit. The CPMG will evaluate biochemistry changes at the next audit as well as the usefulness of the management plan to assist nursing staff.

Conclusion

The role of the nurse in haemodialysis is evolving and taking on a new direction. Nurses have been given the opportunity to explore their practice as a collective and there have been changes as a result. The process of PD has gathered momentum and it is ongoing in the HHU. One member of the CPMG has described the PD process as empowering. All members have enjoyed the challenge and have been supported to tackle the important issue of calcium and phosphate management in a planned and thorough way.

Actions to investigate the management of calcium and phosphate for patients requiring hospital haemodialysis have resulted in an improvement in the knowledge of nurses. A protocol has been developed to guide nurses in their decision-making concerning the best management for primary patients. The CHMG are also exploring resources that can be utilised for patient education.

This PD project has attempted to correct a shortcoming in the delivery of care to patients requiring hospital haemodialysis. The early recognition of calcium and phosphate abnormalities and the proactive management to prevent long-term complications has traditionally been doctors' work. Nurses have taken on the challenge and developed resources and protocols to better manage this aspect of chronic dialysis care. It is hoped that there will be positive outcomes reflected in the next biochemical audit for these patients.

There has been a shift in the culture in the HHU and nurses are now actively examining their practice and using the latest evidence to enact changes that will benefit the patients. The nurses have been empowered to share their work at seminars and conferences and in the preparation of this paper. It is hoped that the PD work will lead to sustainable change and that new leaders will emerge to facilitate the PD processes.

References

- CARI, (2006) CARI Guidelines viewed October 10th 2006 <http://www.cari.org.au>.
- CARI, (2005) CARI Guidelines viewed July 12th 2005 <http://www.cari.org.au>.
- Dewing, J., & Reid, B. (2003). A model for clinical practice within the nurse consultant role. *Nursing Times*, 99(9), 30-32.
- Garbett, R., & McCormack, B. (2002). A concept analysis of practice development. *Nursing Times Research*, 7(2), 87-100.
- Harvey, G., Loftus-Hills, A., Rycroft-Malone, J., Titchen, A., Kitson, A., McCormack, B., Seers, K. (2002). Getting evidence into practice: The role and function of facilitation. *Journal of Advanced Nursing*, 37(6), 577-588.
- Manley, K. (1997). A conceptual framework for advanced practice: An action research project operationalizing an advanced practitioner/consultant nurse role. *Journal of Clinical Nursing*, 6(3), 179-190.
- Manley, K. (2000a). Organisational culture and consultant nurse outcomes: Part 1 organisational culture. *Nursing Standard*, 14(36), 34-38.
- Manley, K. (2000b). Organisational culture and consultant nurse outcomes: Part 2 nurse outcomes. *Nursing Standard*, 14(37), 34-39.
- Manley, K., & McCormack, B. (2003). Practice development: purpose, methodology, facilitation and evaluation. *Nursing in Critical Care*, 8(1), 22-29.
- Wilson, V., & Keachie, P. (2003). Putting the action into learning: the experience of an action learning set. *Collegian*, 10(3), 22-26.
- Wright, J., & McCormack, B. (2001). Practice development: Individualised care. *Nursing Standard*, 15(36), 23-29.