The effects of a nurse-led case management programme on patients undergoing peritoneal dialysis: a randomized controlled trial

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Discussion Content

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End Stage Renal Failure (ESRF)

- For ESRF patients, dialysis or renal transplantation is the only treatment choice if life is to be sustained.

- Figures from the Hong Kong Renal Registry showed that out of the total number of patients on renal replacement therapy, 50.1% of the patient were on Peritoneal Dialysis (PD),
  * 11.3% on Haemodialysis,
  * 38.6% have had renal transplantation
    as recorded in March 2005.

- Among the patients on dialysis treatment, 81.6% were on PD.
Peritoneal Dialysis (PD)

- PD is a relatively simple and effective dialysis technique and has been developed into the preferred treatment choice for ESRF patients.

- ESRF patients face physical, psychological, and social problems related to their illness and treatment.

- A multi-disciplinary case management approach is deemed necessary to provide intensive physical and psychological care for the patients to maintain a meaningful life.

Thomas, 2002
Case Management in Hong Kong

Case management is defined by the Hong Kong Hospital Authority as a “systematic process of assessment, service co-ordination, referral monitoring and evaluation, through which the unique needs of clients are met”. It was introduced into two Community Nursing Centres in Hong Kong in 1996.
Essential features of Case Management (CM)

- Comprehensiveness
- Continuity
- Coordination
- Collaboration

Wong, 2005
Aim of the study

To examine the effects of a nurse-led case management programme on patients undergoing peritoneal dialysis.
Objectives of the study

To explore whether nurse-led case management care (study group) results in greater self-care adherence, quality of life and patient satisfaction than conventional care (control group); and

To explore whether nurse-led case management care (study group) results in better symptom and complication control, and reduction in health service utilization than conventional care (control group); and
The study adopted the Randomized Controlled Trial (RCT).

Single-blinded study.

The data collector has no clinical association with the patients responsible for outcome data collection.
Subject Selection

Inclusion criteria:

- Patients on Continuous Ambulatory Peritoneal Dialysis or Continuous Cycle Peritoneal Dialysis
- Are alert and oriented when admitted
- Are able to communicate with the case manager
- Can be contacted by phone at home
- Non-old aged home residents
- Live in hospital service area
**Interventions**

**Control group** received usual nursing care during hospitalization

- Usual discharge planning including patient initiated telephone hotline services and regular clinic follow-ups

**Study group** received usual nursing care during hospitalization.

- Introduce case manager on admission

- Pre-discharge needs assessment using the **OMAHA system**

- Participation of patient and family to discuss the plan of discharge

- Nurse-initiated phone call **within 72 hrs** post discharge

- Weekly telephone follow-up for **6 weeks**

- Refer to nurse clinic, community nursing services, reschedule medical appointment or emergency room referrals if appropriate

- Patient can initiate calls to the hotline service
Selection and training of Case Managers

- The case managers are full time experienced renal nurses of the study hospitals.
- The nurses are able to provide appropriate advice, get access to patients’ records and facilitate coordination and collaboration.
- A comprehensive training programme: by the nurse specialist, ward manager and investigator.
- Basic theories on case management, use of Omaha system, interview skills, and clinical protocols.
- Telephone interview skills were tested after the training programme.
- Audiotapes of telephone interviews reviewed independently by the investigator, nurse specialist and unit manager.
- Written and verbal feedbacks to individual case managers.
Protocol Development

- Comprehensive protocol and guideline - avoid confusion to the staff involved and reduces variation in practice.

- Developed based on current published literature plus expert inputs contributed by experienced nursing staff and physicians.

- The various protocols include guidelines for patient and family education before discharge; telephone interviews, management options during interviews, and documentations.
Data Collection

Data collection at 3-time intervals: baseline data on admission, 6 and 12 weeks post-discharge.

- **Intervention period: 6 weeks**

<table>
<thead>
<tr>
<th>T1</th>
<th>T2</th>
<th>T3</th>
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<tr>
<td>Before intervention</td>
<td>After intervention</td>
<td>6 weeks post intervention</td>
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- Data on health service utilization were retrieved from hospital data base 12 weeks after discharge.
Subject recruited

79 patients (38 studies vs 41 control) completed the protocol.
Patient satisfaction

- **Control group** (T1=85.76, T2=84.57, T3=84.58)
- **Study group** (T1=86.66, T2=92.21, T3=89.53)

**Repeated measures (GLM)**
- Within group (time) effect: $F=2.89$, $p=0.05^*$
- Between group (group) effect: $F=4.41$, $p=0.03^*$
- Interaction (time x group) effect: $F=6.89$, $p<0.001^*$

**Repeated measures (study group)**
- $F=7.19$, $p<0.001^*$

**Post hoc pairwise comparison (p<0.025 is significant)**
- T1 vs T2=0.01*, T1 vs T3=<0.01*
**Blood chemistry results (sodium)**

Control group (T1=135.44, T2=137.22, T3=136.63)
Study group (T1=135.44, T2=136.76, T3=135.84)

**Repeated measures (GLM)**
Within group (time) effect: F=3.92, p=0.02*
Between group (group) effect: F=0.16, p=0.69
Interaction (time x group) effect: F=0.26, p=0.78

**Repeated measures (control group)**
F=3.10, p=0.05*

**Post hoc pairwise comparison (p<0.025 is significant)**
T1 vs T2<0.01*, T1 vs T3=0.06

**Clinical significance has been indicated.**
Blood chemistry results (potassium)

Control group (T1=3.70, T2=3.90, T3=4.04)
Study group (T1=3.78, T2=3.96, T3=4.09)

Repeated measures (GLM)
Within group (time) effect: F=7.63, p<0.001*
Between group (group) effect: F=0.28, p=0.59
Interaction (time x group) effect: F=0.012, p=0.98

Repeated measures (control group)
F=5.53, p<0.01*

Post hoc pairwise comparison (p<0.025 is significant)
T1 vs T2=0.04, T1 vs T3<0.01*

Clinical significance has been indicated.
Symptom control

Friedman and Wilcoxon tests were used as nonparametric analogues of repeated measures analysis of variance and paired t-test.

**Oedema:** insignificant results from Friedman test. T1 vs T3=0.06 in study group.

**Peritonitis:** significant difference in existence of peritonitis across time in both groups. Pairwise comparisons were significant in two groups (T1 vs T2, T1 vs T3). Clinical significance has been indicated.

**Exit site condition:** insignificant results from Friedman test, and pairwise comparison from McNemar tests.

**Body weight change:** insignificant results from Friedman and Wilcoxon tests.
Non-adherence to treatment regimen (diet non-adherence)

- Control group (T1=2.37, T2=2.05, T3=2.12)
- Study group (T1=2.24, T2=1.76, T3=1.82)

Repeated measures (GLM)
- Within group (time) effect: F=4.09, p=0.02*
- Between group (group) effect: F=0.18, p=0.67
- Interaction (time x group) effect: F=0.03, p=0.97

Repeated measures (control group)
- F=2.46, p=0.10

Repeated measures (study group)
- F=2.44, p=0.09

Greater improvement of the study group than control group.
Non-adherence to treatment regimen (medication non-adherence)

- Control group (T1=0.68, T2=1.02, T3=1.05)
- Study group (T1=1.08, T2=0.47, T3=0.55)

Repeated measures (GLM)
- Within group (time) effect: $F=0.26$, $p=0.77$
- Between group (group) effect: $F=0.76$, $p=0.38$
- Interaction (time x group) effect: $F=4.60$, $p=0.01^*$

Repeated measures (study group)
- $F=3.92$, $p=0.04^*$

Post hoc pairwise comparison (p<0.025 is significant)
- T1 vs T2=0.01*, T1 vs T3=0.07
Kidney disease quality of life (KDQOL-SF)

- **Within-group effects**
  1. Effects of kidney disease on daily life (p=0.01)
  2. Emotional well-being (p=0.01)
  3. Role-physical (p<0.001)
  4. Symptoms (p=0.02)
  5. Pain (p=0.06)
  6. Social function (p<0.001)

- **Interaction effects**
  1. Encouragement from dialysis staff (p=0.01)
  2. Patient satisfaction (p=0.05)
  3. Sleep (p=0.001)
  4. Social function (p=0.01)

- **Significant difference in repeated measures (study group)**
  Quality of social interaction (p<0.05)
Health service utilization

Data retrieved within 12 weeks before and 12 weeks after intervention.

No significant difference between the two groups in frequencies of emergency room attendance, hospital readmissions and hospital length of stay.

No significant difference in own group comparison before and after intervention.
Discussion

The results of this study confirmed the use of a nurse-led case management programme significantly improves patients’ quality of life, satisfaction, and health related behaviours.

There was no significant change in utilization of health care service, blood chemistry results and symptom control.
The effectiveness of the new model of care

- The comprehensive strategies including pre-discharge assessment, patient education and post-discharge telephone follow-ups with mutual goals established.

- Patients are informed and able to understand their chronic conditions, and know what to expect from the health care system.

- Care provided was patient specific rather than disease or cost specific.

- Patient empowerment - emphasizing patient’s role in managing the disease.

- Protocol driven interventions addressing individual’s needs and providing support during transitional phases of post-discharge.
Conclusion

- This was a pioneer study on the effects of a nurse-led case management programme on renal patients in Hong Kong.

- The empirical findings provide useful direction for continuity of care from hospital to community.

- The new model of care enables patients to have a continuing relationship with the health care staff to ensure that problems are managed in a holistic way.

- This proactive programme has been effective and culturally appropriate in Hong Kong Chinese patient population.
Thankyou