Improving Outcomes on End Stage Heart Failure Patients by Palliative Nurse Follow-up

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Collaborators

- United Christian Hospital & Haven of Hope Hospital
  *(Dr PT Lam, Dr J Ng, Mr E Tang, medical & PC team)*
- Grantham Hospital *(Dr M Sham, PC & home care team)*
- The Hong Kong Polytechnic University
  *(Professor FKY Wong, Ms AYM Ng)*
Background

- Heart failure (HF), major public health problem worldwide
  (Jaarsma et al., 2009)
- High morbidity & mortality
- Incurable
- Characterized by periods of stability vs acute exacerbations
  (Lehman, 2004)
Heart Failure

- Leading cause of hospital admissions in patients older than 65 years old
  
  (American Heart Association, 2009)

- Patients experience significant symptoms and repeated hospitalizations in the last year of their life
  
  (Murthy & Lipman, 2011)

- Documented unmet needs that extend beyond routine medical care, in particular, from hospital to home
  
  (Hupcey et al., 2009)
Poor Outcomes Associated with HF

- 40% of people die within 1 year of an initial diagnosis of heart failure
  (British Heart Foundation, 2011)

- People with HF experience marked reductions in health related quality of life
  (Blinderman et al., 2008; Zambroski et al., 2005)

- Frequent hospital admissions
  (Annema, Luttik, & Jaarsma 2009)

- Wide range of symptoms & reduced functional ability
  (McMillan, Dunbar, & Zhang, 2007)
Disease Trajectory

Source: adapted from Goodlin, 2009
Palliative Care for Heart Failure

- PC is regarded as an appropriate strategy to address the needs of end-stage HF patients
  
  Adler et al., 2009

- Practice guidelines and clinical standards have incorporated PC into standard heart failure management

  ACC/AHA heart failure practice guideline, 2010
  NHS, 2010
Service gap

- Palliative care for non-cancer patients is one of the service gaps in palliative care
  (Hong Kong College of Physicians, 2008)

- End-stage organ failure patients programs introduced to selected groups, mainly renal
  (Hospital Authority, 2011)
Research aim

- To test an innovative home-based care model on end-stage HF patients under palliative care
Methodology

- Randomized control trial

Inclusion criteria
- end-stage HF patient eligible for palliative care identified by physician
- living within the hospital service area
- able to speak and understand Cantonese
- able to be contacted by phone

Exclusion criteria
- cognitive impairment
- diagnosed with severe psychiatric disorders
- discharged to nursing home or other institution
Ethical consideration

- This study was reviewed and approved by the Research Ethics Committees of the two clusters
- Human Subjects Ethics Sub-Committee of The Hong Kong Polytechnic University
- Written informed consent obtained for each participant
Intervention

- Home-based Palliative Heart failure Program (HPHP)
  - Home visit
  - Telephone call
  - Standardized protocols & documentation forms
- Trained palliative home care nurse as nurse case managers
- Trained volunteers with nursing background
Intervention

Randomization

Usual care
- Standard discharge arrangement (e.g. medication, medical follow up)
- Palliative care outpatient consultation
- Referral as appropriate (e.g. social worker)

Usual care + HPHP
Pre-discharge assessment
Post-discharge follow up
- First month
  Week 1 home visit
  Week 2 phone call
  Week 3 home visit
  Week 4 phone call
- Second month and after
  Monthly home visit and phone call till patient’s death or up to 12 months

Outcome measures
Allocated to Intervention \( (n=28) \)

Allocated to Control \( (n=24) \)

Excluded \( (n=188) \)
   - Old aged home residents
   - Too weak to be interviewed
   - Cognitive impairment
   - Out of service area
   - Being recruited to other programs

Randomized \( (n = 52) \)

Lost to follow up \( (n=7) \)

Lost to follow up \( (n=7) \)

Analyzed \( (n=21) \)

Analyzed \( (n=17) \)

Lost to follow up
   - Passed away
   - Moved out to old aged home
   - Too weak to be interviewed
   - Patient refused
Results

- Demographic data
- Quality of life
  - Dyspnea
  - Total score
- Satisfaction of care
  - Survey
  - Patient interview
## Demographic data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (N=52)</th>
<th>Control (N=24)</th>
<th>Intervention (N=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y (Median)</td>
<td>80</td>
<td>78.5</td>
<td>81.5</td>
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<tr>
<td>Sex</td>
<td></td>
<td></td>
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<tr>
<td>Male, N (%)</td>
<td>23 (44.2)</td>
<td>10 (41.7)</td>
<td>9 (32.1)</td>
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<tr>
<td>Female, N (%)</td>
<td>29 (55.8)</td>
<td>14 (58.3)</td>
<td>19 (67.9)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>17 (32.7)</td>
<td>7 (29.2)</td>
<td>10 (35.7)</td>
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<tr>
<td>Below Secondary</td>
<td>32 (61.6)</td>
<td>15 (62.5)</td>
<td>17 (60.7)</td>
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<td>Graduate</td>
<td>3 (5.8)</td>
<td>2 (8.3)</td>
<td>1 (3.6)</td>
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Quality of life

### Dyspnea Domain

<table>
<thead>
<tr>
<th>Time period</th>
<th>Baseline n</th>
<th>Baseline Mean</th>
<th>Month 1 n</th>
<th>Month 1 Mean</th>
<th>P-value</th>
</tr>
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<tbody>
<tr>
<td>Intervention</td>
<td>28</td>
<td>4.99</td>
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<td>5.70</td>
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<td>Control</td>
<td>24</td>
<td>5.05</td>
<td>17</td>
<td>5.42</td>
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Chronic Heart Failure Questionnaire Chinese version
# Quality of life

## Total Domain

<table>
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<th>Time period</th>
<th>Baseline n</th>
<th>Baseline Mean</th>
<th>Month 1 n</th>
<th>Month 1 Mean</th>
<th>P-value</th>
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<tbody>
<tr>
<td>Intervention</td>
<td>28</td>
<td>18.12</td>
<td>21</td>
<td>20.17</td>
<td>0.015</td>
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<tr>
<td>Control</td>
<td>24</td>
<td>17.88</td>
<td>17</td>
<td>19.30</td>
<td>0.774</td>
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</tbody>
</table>

Chronic Heart Failure Questionnaire Chinese version
# Satisfaction of care

<table>
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<tr>
<th>Time period</th>
<th>N</th>
<th>Mean</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>21</td>
<td>45.76</td>
<td>0.016</td>
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<tr>
<td>Control</td>
<td>17</td>
<td>37.88</td>
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</table>
Satisfaction of care

Patient interview

“... the nurse called me to follow up my edema problem, I told her my lower limbs edema increased, she consulted with the palliative physician; ... she then advised me to add dosage of diuretic and my edema relieved eventually. ”

(RC206_P6_L74-81)

“... the nurse came to my home, taught me some breathing exercise, reminded me on fluid and salt intake restriction, those helped me a lot. ”

(RC213_P6_L75-77)
Conclusion

- Homed-based palliative nurses supported by PC team play an essential role in providing effective care from hospital to home continuum.
- ESHF patients had significant improvement in dyspnea and QOL with HPHP.
- HPHP brought about higher satisfaction of care among ESHF patients.
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THANK YOU