Whose Life is it anyway? benefits of increased frequency dialysis
Michael Kraus, MD FACP
Cathy Cox, RN, BSN, MS, CNN

What are the barriers?

- Space and resources
  - Need nurses, clerical, ?pct
  - Start with plan and patients
- Nurses
  - Need educators
  - Need a champion
  - PD vs in-center experience
  - No perfect patient – stop looking

The perfect patient

- Nurses desire this
- Motivated, young, healthy, working...
- Great social support

NOT A LOT OF THEM
Cannot wait for them or only accept them
The Typical Patient

- Sick
- Scared
- Marginal social support
- Multiple medical co-morbidities
  - Including cancer, Paraplegia, LVAD, CHF, trach...
  - Frequently some of our sickest patients
  - BUT not nursing home patients
- Can succeed with at home

What are the barriers

- Patients
  - Lack of adequate and timely education
  - Partner – Present/Burden
  - Home – adequate storage
  - Motivation
  - Quality of life
  - FEAR
- Education, Age, Well water, Payor status, IQ...
  - NOT BARRIERS TO THERAPY
  - Clues on how to teach!

Overcoming the Barriers

- Many of these Barriers can be overcome:
  - Timely and appropriate education
  - True Informed Consent
  - Peer support groups
  - Use of low dialysate volume machine
  - Two week trials
  - Excellent training by competent and professional nurses
  - REASSURANCE
Center Barriers

- Too small – not enough experience
- Location
  - Too far
  - On bus line?
- Supplies
- Urgencies/Emergencies
  - Center open
  - Doctor available
  - Transportation

Nursing – patient retention

- Respite care
- Multidisciplinary clinic with nephrologist involvement
- Home visits
- Peer support
- Reliable and friendly on call support
  - Unit
  - Device Manufacturer

"What a bunch of control freaks!"
Patients expect our BEST –
Quality and Honesty

- Integrity
  - In ethics, integrity is regarded as the honesty and truthfulness or accuracy of one's actions.
  - Integrity is the inner sense of "wholeness" deriving from qualities such as honesty and consistency of character.

- Mediocrity

Dialysis Today

- ESRD in the US
  - 91% in-center hemodialysis (thrice weekly).
  - 7.5% Peritoneal Dialysis
  - 1.5% Home hemodialysis (90% Short Daily)

- Canada and Australia
  - 10% Nocturnal Home Hemodialysis

In-Center Dialysis Today

- Inflexible schedule
- Difficult travel
- Inability to work
- Medical complications with high morbidity
  - Hypertension, poor sleep, depression, post dialysis fatigue, cardiovascular disease
In-Center Dialysis Today

• Inflexible schedule
• Difficult travel
• Inability to work
• Medical complications with high morbidity
  – Hypertension, poor sleep, depression, post dialysis fatigue, cardiovascular disease
• 24% Mortality rate – 2/3 of patients die in 5 years

What can we do?

• Today - Novel approaches to “Home” dialysis and increasing frequency
• “Tomorrow” – Smaller devices, Wearable devices, Implantable devices, biologic devices, continuous devices...

IU Health Experience

SDHD Since 2004
> 200 patients trained
65 patients on therapy
Stand Alone program since 2009
New Markers of QOL

- Stay on therapy
  - Perception of well-being
  - “Quality of therapy” for patient and spouse

- Normal life
  - Work
  - Travel
  - Pregnancy

Censored Technique Survival

Censored for transplant, death, and renal recovery

<table>
<thead>
<tr>
<th></th>
<th>SDHD</th>
<th>CAPD</th>
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<tbody>
<tr>
<td>No. of Patients</td>
<td>75</td>
<td>105</td>
</tr>
<tr>
<td>Patients alive</td>
<td>40</td>
<td>69</td>
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<td>Patients alive</td>
<td>22</td>
<td>40</td>
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<td>Patients alive</td>
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<td>11</td>
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<tr>
<td>Patients alive</td>
<td>6</td>
<td>4</td>
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<tr>
<td>Patients alive</td>
<td>4</td>
<td>3</td>
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</tbody>
</table>

Data on file, Indiana University Medical Center/Clarian Health Partners

Percent working

- Peruvian IU SDHD Program and Network 9/10 Working Age Hemodialysis Population
- Incident USRDS 2007 Overall

Planes, Trains, and Automobiles

- 35% of all patients have traveled
- 42% of prevalent patients have traveled
  - > 40 trips
  - > 35 states
  - > 6 plane
  - 2 Cruises
  - 3 RV
  - 1 bus
  - 1 train (Idaho)
  - multiple Automobile

Kraus et al, 18:2007 S12A.

IU Health Experience

- The sickest patients frequently experience the greatest benefit.
- SDHD does not:
  - Cure Cancer
  - Improve severe COPD
  - Correct other end stage diseases
- SDHD might:
  - Change the primary diagnosis with death
    - Only 1/3 of patients die of cardiac disease
      (MI, Sudden death, Cardiac other)

Quality of life
FREEDOM STUDY

- Improved Time to recovery
- Improved Depression
- Improved Blood pressure with less medications
- Improved Sleep and restless legs
- Improved Quality of life

SDHD Reduces “Post-Dialysis Recovery Time”

SDHD Improves Mental & Physical Health (SF-36 Scores)
FREEDOM Special Study Questions

<table>
<thead>
<tr>
<th>Special Study Questions</th>
<th>Baseline Score</th>
<th>Month-4 Score</th>
<th>Month-12 Score</th>
<th>Global P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall quality of life</td>
<td>6.4 (6.0, 6.7)</td>
<td>7.3 (7.0, 7.5)</td>
<td>7.9 (6.6, 7.4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Physical intimacy</td>
<td>4.9 (4.3, 5.5)</td>
<td>6.1 (5.5, 6.7)</td>
<td>5.7 (5.1, 6.3)</td>
<td>0.0005</td>
</tr>
<tr>
<td>Likelihood of returning to prior dialysis regime</td>
<td>8.1 (7.5, 8.7)</td>
<td>9.1 (8.7, 9.5)</td>
<td>9.1 (8.7, 9.5)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Krause, M et al. Short Daily Hemodialysis (SDHD) improves Overall Quality of Life (QOL) and Physical Intimacy. Interim Results from the FREEDOM study. Abstract Presentation, ASN 2011.

Survival

Co-Primary Outcome Results – Death or 12 month Change in Left Ventricular Mass (LV Mass).

Median Change: The median for composite outcomes (Death or Change in LV Mass) at the 50% value on the vertical axis indicates the median composite outcome results. Median outcomes for the composite outcome of death or change in LV Mass correspond to a reduction in LV mass of 12.3 g in the frequent-hemodialysis group, compared with a reduction of 2.2 g in the conventional dialysis group (difference in medians, 10.1 g).

Mean Change

Copyright © 2010 Massachusetts Medical Society. All rights reserved. The FHN Trial Group. In-Center Hemodialysis Six Times per Week versus Three Times per Week. The New England Journal of Medicine. 2010:363;2287-2300.
FHN Study Conclusion

Frequent hemodialysis, as compared with conventional hemodialysis, was associated with favorable results with respect to the composite outcomes of death or change in left ventricular mass and death or change in a physical-health composite score but prompted more frequent interventions related to vascular access.

Chronic Disease Research Group Study

Results - Mortality Risk Reduced

DHHD patients were at lower risk for death than 3xICHD patients. The risk of death was roughly 13% lower in DHHD vs. 3xICHD patients.
Chronic Disease Research Group Study

- NKF 2012 Spring Clinical meetings
- Increased frequency SDHD patients not listed at entry were 4 times more likely to get a transplant over 5 year follow-up and had better overall mortality.

Why home dialysis?

- Evidence based increased frequency associated with:
  - Improved Quality of life
  - Improved Quantity of life
- Home dialysis allows for economical delivery of increased frequency dialysis
- CMS Conditions for coverage:
  - Mandates education of all modalities
  - Mandates provision of all modalities

Solutions

- Improve your knowledge
- Define your desire
- Plan for SUCCESS not failure
  - Start with enough resources
  - Professional and competent nursing educators
- Addition to PD unit
- Plan for RESPITE care
- Consider centers of excellence
- Identify 10 patients to start
What would you want?

- You owe it to your patients to offer the best available therapies
- Overcome the Barriers – Stop the Excuses
- Evidence supports 3 maneuvers to improve ESRD QOL/Survival TODAY
  - TRANSPLANT
  - AV FISTULA
  - INCREASED FREQUENCY (HOME) DIALYSIS