Advanced Kidney Disease in Elderly

Anjali Gupta

7/26/11
Issues

- Do we change the survival with dialysis?
- Identifying subset of elderly who would be good candidates for dialysis.
- Is there an improvement in quality of life/functional Status?
- HD vs PD?
- Timing of access placement?
Current Facts

• The average age of the patient undergoing dialysis in the United States and world has been steadily increasingly.

• More than 25% of all people starting RRT are now 75 years old and above and number is expected to increase.

• Mortality in the first year after the initiation of dialysis exceeds 35% among those 70 years of age and exceeds 50% among patients older than 80 years.
Clinical Practices and Outcomes in Elderly Hemodialysis Patients: Results from the Dialysis Outcomes and Practice Patterns Study (DOPPS)
Median Survival

Europe: 3.3 Yrs
ANZ: 1.6 years
Japan: 5.4 years
North America: 2.5 years
Elderly with CKD stage V
Dialysis or no dialysis??
What is conservative management?

- Follow up with multidisciplinary team- nephrologist, dietician and Social worker.
- Management of anemia
- Volume control
- BP control
- Pain management
Survival of elderly patients with stage 5 CKD: comparison of conservative management and renal replacement therapy

- 844 patients identified with GFR <15 by review of records over 18 years
- Co morbidities: DM, PVD, CVA, Cirrhosis, cancer, cardiac
- Low score <4, high score >4

Table 1. Demographic and clinical details of patients treated by dialysis and conservative kidney management

<table>
<thead>
<tr>
<th></th>
<th>Conservative</th>
<th>Dialysis</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>155 (18%)</td>
<td>689 (82%)</td>
<td></td>
</tr>
<tr>
<td>Age at stage 5 (years)</td>
<td>77.5 ± 7.6</td>
<td>58.5 ± 15.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% &gt;75 years</td>
<td>68.4</td>
<td>11.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% Male</td>
<td>59.4</td>
<td>66.6</td>
<td>NS</td>
</tr>
<tr>
<td>% Non-white</td>
<td>14.2</td>
<td>15.7</td>
<td>NS</td>
</tr>
<tr>
<td>% Diabetes</td>
<td>35.5</td>
<td>34.3</td>
<td>NS</td>
</tr>
<tr>
<td>% High comorbidity</td>
<td>49.7</td>
<td>17.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>eGFR at stage 5</td>
<td>13.2 ± 1.4</td>
<td>13.2 ± 1.4</td>
<td>NS</td>
</tr>
</tbody>
</table>

Median survival in RRT as c/w CM was
- 67.1 vs 21.2 months: P < 0.001
Table 2. Median survival by Kaplan–Meier analysis of patients aged >75 treated by conservative means or by dialysis, stratified by comorbidity group

<table>
<thead>
<tr>
<th>Comorbidity</th>
<th>Treatment</th>
<th>Number</th>
<th>Median</th>
<th>SE</th>
<th>Lower bound</th>
<th>Upper bound</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low comorbidity</td>
<td>Dialysis</td>
<td>60</td>
<td>36.8</td>
<td>8.4</td>
<td>20.4</td>
<td>53.2</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Conservative</td>
<td>52</td>
<td>29.4</td>
<td>3.7</td>
<td>22.2</td>
<td>36.6</td>
<td></td>
</tr>
<tr>
<td>Severe comorbidity</td>
<td>Dialysis</td>
<td>17</td>
<td>25.8</td>
<td>4.4</td>
<td>17.3</td>
<td>34.4</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Conservative</td>
<td>54</td>
<td>20.4</td>
<td>2.4</td>
<td>15.7</td>
<td>25.2</td>
<td></td>
</tr>
</tbody>
</table>
Results

- Significant predictors of mortality in RRT gp were age, presence of DM and co morbidity index.
- Elderly with high co morbidities and slow decline in renal function may not significantly benefit from RRT in terms of survival.
- Drawbacks- retrospective, functional status not considered, late referrals were excluded.
Observational follow up study of >70 yrs with CKD stage V (1997-2003), followed until 2005

- Av age was 77 in RRT vs 81 in CM
- Median survival was 37.8 mo for RRT as c/w 13.9 mo for MCM patients.
- RRT pt spent 47.5% of the days they survived in the hospital vs 4.3% in MCM gp and were likley to die in hospital.
USRDS/ Minimum Data Set used to identify 3702 nursing home residents who started dialysis between 1998 and 2000.

Functional status was measured by Minimum Data Set–Activities of Daily Living [MDS–ADL].

Change in functional status at 3, 6, 9, and 12 months after the initiation of dialysis were accessed.

Average age was 73 and GFR about 10 ml/min.

69% of pt started dialysis as inpatient.
Mortality was 24% at 3 months, 41% at 6 months, 51% at 9 months, and 58% at 12 months.

By 12 months, 87% of residents had died or had a decrease in functional status.

Older age, white race, CVD, dementia, hospitalization at the start of dialysis, and a serum albumin level below 3.5 g were independently associated with decline.
Results…

Why does functional status decline despite the treatment of uremia?

- Presence of comorbid conditions not corrected by dialysis
- Functional decline secondary to hospitalizations
- Benefits of correcting uremia may be outweighed by physical risks associated with dialysis.
- Kidney failure may be a reflection of terminal multiorgan dysfunction rather than a primary cause of functional decline.
Loss of Independence in Patients Starting Dialysis at 80 Years of Age or Older
Predictors of Poor Outcome

From studies that I discussed before…

- Older age, white race, CVD, dementia, hospitalization at the start of dialysis, and a serum albumin level below 3.5 g associated with poor functional outcome

- Residents of nursing home
Geriatric comorbidities, such as falls, confer an independent mortality risk to elderly dialysis patients.

162 patients, age > 65 yrs on chronic HD were prospectively followed for a median of 32.7 months.

Patients who had falls were more likely to be older, have a higher number of comorbid illnesses and have diabetes.

On multivariate analysis after adjusting for predictors of dialysis mortality, falls were a significant predictor of death (HR 1.78; 95% CI, 1.07–2.98)
Utility of the “Surprise” Question to Identify Dialysis Patients with High Mortality

Mortality rate for “no” gp was 29.4% and for the “yes” gp was 10.6%.

In the multivariate analysis, only CCI score was significant.

A
Survival by Surprise Question Response

B
Survival by Comorbidity Score

A clinical score to predict 6-month prognosis in elderly patients starting dialysis for end-stage renal disease

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body mass index (kg/m²)</td>
<td></td>
</tr>
<tr>
<td>≥ 18.5</td>
<td>2</td>
</tr>
<tr>
<td>&lt; 18.5</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>1</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Congestive heart failure stage III or IV</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>2</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Peripheral vascular disease stage III or I</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>2</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Dysrhythmia</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>1</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Active malignancy</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>1</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Severe behavioural disorder</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>1</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Totally dependent for transfers</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>2</td>
</tr>
<tr>
<td>Presence</td>
<td></td>
</tr>
<tr>
<td>Initial context</td>
<td></td>
</tr>
<tr>
<td>Planned</td>
<td>3</td>
</tr>
<tr>
<td>Unplanned</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

![Graph showing the percentage of patients alive, dead without withdrawal, and dead after withdrawal for different point scores.](image)
Modality of Dialysis

• In most countries, older patients are less likely to start on PD as compared to younger patients.

• 2002 one retrospective showed poor outcome in PD, while North Thames Dialysis Study investigated 174 elderly patients on PD for 1 year and had good outcomes, but good comparative studies are lacking.

• Prejudice against PD in the elderly is based mainly on the feeling of the (pre)dialysis team that ‘the patient will not be able to do it’.
Broadening Options for Long-term Dialysis in the Elderly (BOLDE): differences in quality of life on peritoneal dialysis compared to haemodialysis for older patients

- Cross-sectional, multi-centred study, QOL assessment in 140 people (65 years or older) on PD and HD was done.

- The PD patient was recruited first and matched to an HD patient with similar demographic characteristics.

- The intrusiveness is determined by assessing the extent to which the illness and/or treatment interferes with 13 life domains.

- More comorbidities and DM were present in the HD group compared to the PD group.
Table 3. Unadjusted quality of life outcomes in older PD and HD patients

<table>
<thead>
<tr>
<th>Quality of life assessments</th>
<th>PD</th>
<th></th>
<th>HD</th>
<th></th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td></td>
<td>n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SF-12 PCS&lt;sup&gt;a&lt;/sup&gt;, mean (SD)</td>
<td>70</td>
<td>36 (12.1)</td>
<td>70</td>
<td>34.3 (9.7)</td>
<td>0.263</td>
</tr>
<tr>
<td>SF-12 MCS&lt;sup&gt;a&lt;/sup&gt;, mean (SD)</td>
<td>70</td>
<td>55.0 (8.4)</td>
<td>70</td>
<td>51.3 (12.9)</td>
<td>0.046</td>
</tr>
<tr>
<td>IIRS, median (IQR)</td>
<td>69</td>
<td>22.0 (15.0)</td>
<td>70</td>
<td>26.0 (19.0)</td>
<td>0.006</td>
</tr>
<tr>
<td>HADS: depression, median (IQR)</td>
<td>70</td>
<td>4.0 (5.0)</td>
<td>70</td>
<td>6.0 (5.0)</td>
<td>0.003</td>
</tr>
<tr>
<td>HADS score &gt;8; prevalence of possible depression (%)</td>
<td>70</td>
<td>10</td>
<td>70</td>
<td>26</td>
<td>0.015</td>
</tr>
</tbody>
</table>

![Graph showing mean predicted value for IIRS](image-url)
Impact of contraindications, barriers to self-care and support on incident peritoneal dialysis utilization
Conclusions

- Dialysis can prolong survival but the benefit to individual patients varies widely.
- Survival benefit may be lost in patients with comorbid conditions.
- Elders in nursing homes do poorly on dialysis and likely need effective rehabilitation during treatment.
- Assumption that conservative therapy is a death sentence is wrong.
- Prospective studies to define predictors of good outcomes in the population of patients undergoing dialysis are urgently needed.
Conclusions..

• Prior to the initiation of dialysis, elderly patients must be informed about its modest benefit in their age group and the possibility of conservative therapy.

• Care to be directed based on patient’s goals.

• PD can be a good option and should involve family discussion before deciding the modality

• And lastly… don’t forget to ask the SURPRISE QUESTION
Thank You
SF-36® Measurement Model

- **Items**
  1. 3a. Vigorous Activities
  2. 3b. Moderate Activities
  3. 3c. Lift, Carry Groceries
  4. 3d. Climb Several Flights
  5. 3e. Climb One Flight
  6. 3f. Bend, Kneel
  7. 3g. Walk Mile
  8. 3h. Walk Several Blocks
  9. 3i. Walk One Block
  10. 3j. Bathe, Dress
  11. 4a. Cut Down Time
  12. 4b. Accomplished Less
  13. 4c. Limited in Kind
  14. 4d. Had Difficulty
  15. 7. Pain-Magnitude
  16. 8. Pain-Interferes
  17. 1. EVGFP Rating
  18. 11a. Sick Easier
  19. 11b. As Healthy
  20. 11c. Health To Get Worse
  21. 11d. Health Excellent
  22. 9a. Pep/Life
  23. 9e. Energy
  24. 9f. Worn Out
  25. 9g. Tired
  26. 5a. Cut Down Time
  27. 5b. Accomplished Less
  28. 5c. Not Careful
  29. 9b. Nervous
  30. 9c. Down in Dumps
  31. 9d. Peaceful
  32. 9f. Blue/Sad
  33. 9h. Happy

- **Scales**
  - Physical Functioning (PF)
  - Role-Physical (RP)
  - Bodily Pain (BP)
  - General Health (GH)*
  - Vitality (VT)*
  - Social Functioning (SF)*
  - Role-Emotional (RE)
  - Mental Health (MH)

- **Summary Measures**
  - Physical Health
  - Mental Health

* Significant correlation with other summary measure.
Dialysis or not? A comparative survival study of patients over 75 years with chronic kidney disease stage 5

Table 2. One- and two-year survival rates

<table>
<thead>
<tr>
<th></th>
<th>Dialysis group</th>
<th>Conservative group</th>
<th>All patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year survival rate</td>
<td>84%</td>
<td>68%</td>
<td>74%</td>
</tr>
<tr>
<td>2 year survival rate</td>
<td>76%</td>
<td>47%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Special challenges in addressing health care in this population.

- Burden of comorbid disease is higher.
- Transportation to and from hemodialysis units may become a whole day affair with limited mobility.
- Emotional investment of both patients and health care providers.
- May result in unnecessary hospitalizations, invasive tests and procedures increasing health cost with unclear benefits.