TO KNOW BEFORE: Complexities of Prognosis in Advanced Cancer

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Spartanburg Regional Healthcare System

The challenge:

To make a prognosis talk interesting enough to hold the attention of the audience

William Osler:

“Medicine (prognosis) is the science of uncertainty and the art of probability”
What will we talk about?

- What is prognosis, in the broadest sense?
- Examples of prognostic challenges in advanced cancer
- How do we use prognosis in hospice?
- What is a reasonable approach to life expectancy prognosis?
- What is the best way to communicate prognostic information?
- Wrapping it up

Where am I coming from?

- Hospice doc for 30 years, full time for 10
- IPU and home hospice medical care
- Associated with a very active community cancer center (Gibbs Cancer Treatment and Research Institute)
  - Referrals often very late in the disease trajectory
  - Referrals prior to conclusion of disease modifying treatment plan
  - We are not participating in concurrent care demonstration project

What is prognosis?

- Prognosis: To know before
  - Any prediction about a medical future

- Types of prognosis:
  - Survival/life expectancy
  - Functional status
  - Treatment outcome
DISTURBING QUESTIONS:

Can we really “know before”?

Should we prognosticate at all?

Can we really avoid doing it in hospice?

Won’t we take away our patient’s hope?

The “5 D’s of prognostication”

• Disease progression/recurrence
  – With or without disease modifying treatment
• Death/life expectancy
• Disability/Discomfort
• Drug toxicity vs efficacy
• Dollars (how much will all this cost?)


Survival prediction:

• Major focus for today
• Fundamental principles
  – Prognostication is a dynamic process rather than an event—indicators change through time
  – Prognostic accuracy for a given predictive method varies by the definition of accuracy, patient population, time frame of prediction
  – The exact timing of death cannot be predicted with any available method

Hui D. Cancer Control, 2015
How much time do I (he/she) have, doc?

- Timing of supportive care trajectory/intensity
- Second guessing or prior decisions
- Human beings prefer certainty
- Planning venue and type of care
- Financial planning
- Meaning/value: What do I need to get done and how fast?
- Relationships: Who do I need to see?
- The bedside vigil: How long will it last?

Uncertainty is NOT WANTED! (usually)

Mrs. Long

- 78 yo AA with NSCLC/Stage IIIa
- PPS 50% now; 60% 6 weeks ago
- No family/caregivers
- Mod. Dementia/SNF
- Malignant pleural effusion
- Is she eligible for hospice care?
Mr. Garcia:

- 70 yo man with widely metastatic, castrate resistant prostate cancer for 10 years
- Hospice patient for 6 weeks
- PPS now at 30%; BMI is 17 after loss of app 10% of body weight over 3 months
- Sleeping a lot, minimal PO intake
- Severe pain with movement in 2 locations corresponding to known bony mets
- Oncology attending recommends referral to radiation onc for palliative xrt
- Is that a reasonable intervention?

Ms. Davis

- 58 yo, married, supportive family
- Very accomplished professional musician
- Metastatic pancreatic cancer—disease progression despite disease modifying treatment
- PPS 40% and declining rapidly; ECOG 3-4
- Eating little
- Alert, conversant and intact cognitively—but profoundly depressed
- What’s the best approach?

Question #1: Is the patient eligible for hospice?

- Disease specific prognosis
- Cancer presentations suggesting a life expectancy of 6 months or less
- Key symptoms
- Key cancer complications
- Non-medical determinants of life expectancy
- Prognostic instruments: Helpful or not?
- Formulating a life expectancy prognosis—the “matrix”
Table 6: Survival of Adult Palliative Oncology Patients Receiving Palliative Oncology Therapy

<table>
<thead>
<tr>
<th>Tumor Site</th>
<th>Disease Status</th>
<th>Median Survival (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder</td>
<td>Advanced</td>
<td>4.4</td>
</tr>
<tr>
<td>Brain</td>
<td>Metastatic</td>
<td>11.1</td>
</tr>
<tr>
<td>Brain - metastatic</td>
<td></td>
<td>11.1</td>
</tr>
<tr>
<td>Breast</td>
<td>Metastatic</td>
<td>11.9</td>
</tr>
<tr>
<td>Cervix</td>
<td>Recurrent</td>
<td>3.3</td>
</tr>
<tr>
<td>Colorectal</td>
<td>Advanced</td>
<td>11.7</td>
</tr>
<tr>
<td>Esophagus</td>
<td>Advanced</td>
<td>11.7</td>
</tr>
<tr>
<td>Head and neck</td>
<td>Advanced/squamous</td>
<td>11.7</td>
</tr>
<tr>
<td>Kidney</td>
<td>Metastatic</td>
<td>11.1</td>
</tr>
<tr>
<td>Liver</td>
<td>Advanced</td>
<td>11.1</td>
</tr>
<tr>
<td>Lung - metastatic</td>
<td></td>
<td>11.1</td>
</tr>
<tr>
<td>Neuroendocrine</td>
<td>Advanced</td>
<td>11.1</td>
</tr>
<tr>
<td>Others</td>
<td>Advanced</td>
<td>11.1</td>
</tr>
<tr>
<td>Pancreatic</td>
<td>Metastatic</td>
<td>11.1</td>
</tr>
<tr>
<td>Peritoneal</td>
<td>Metastatic</td>
<td>11.1</td>
</tr>
<tr>
<td>Prostate</td>
<td>Recurrent</td>
<td>11.1</td>
</tr>
</tbody>
</table>

Original Articles

Systematic Review of Cancer Presentations with a Median Survival of Six Months or Less

Shelley R. Salpeter, M.D., D.1,2 David S. Mahler, M.D., D.1,2 Esther J. Luo, M.D., D.1
Albert Y. Lin, M.D., D.2 and Shaila Stuart, M.D., D.1

1. Department of Medicine, National Cancer Institute, National Institutes of Health, Bethesda, MD
2. Department of Medicine, University of Rochester Medical Center, Rochester, NY

Table 1: Cancer Presentations

<table>
<thead>
<tr>
<th>General cancer presentation</th>
<th>Survival benefit of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-cancer in general</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Multiple cancer diagnosis</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Lack of symptoms</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Early diagnosis</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Poor performance status</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Advanced disease</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Metastatic disease</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Unresectable disease</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Palliative treatment</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Painful palliative symptoms</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Palliative care</td>
<td>No evidence of survival benefit</td>
</tr>
<tr>
<td>Palliative support</td>
<td>No evidence of survival benefit</td>
</tr>
</tbody>
</table>

Conclusions of unclear priority
- Pain on a visual analog scale without a clear cause or uncontrolled symptoms
- Fatigue with no clear cause or uncontrolled symptoms
- Anemia with no clear cause or uncontrolled symptoms
- Diarrhea with no clear cause or uncontrolled symptoms
- Nausea and vomiting with no clear cause or uncontrolled symptoms
- Weight loss with no clear cause or uncontrolled symptoms
- Constipation with no clear cause or uncontrolled symptoms
- Dysphagia with no clear cause or uncontrolled symptoms
- Hemoptysis with no clear cause or uncontrolled symptoms

Salpeter et al. Journal of Palliative Medicine, 2012
Clinical signs and symptoms as prognostic indicators in patients with advanced disease

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Median Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyspnea</td>
<td>&lt;30 days</td>
</tr>
<tr>
<td>Dysphagia</td>
<td>&lt;30 days</td>
</tr>
<tr>
<td>Confusion/delirium</td>
<td>&lt;28 days</td>
</tr>
<tr>
<td>Xerostomia</td>
<td>&lt;50 days</td>
</tr>
<tr>
<td>Weight loss (≥10 kg)</td>
<td>&lt;28 days</td>
</tr>
</tbody>
</table>

Clinical Factors

- Malignant hypercalcemia: 8 weeks, except newly diagnosed breast cancer or myeloma
- Malignant pericardial effusion: 8 weeks
- Carcinomatous meningitis: 8-12 weeks
- Multiple brain metastases: 1-2 months without radiation; 3-6 months with radiation
- Malignant ascites, malignant pleural effusion, or malignant bowel obstruction: < 6 months.


Non-medical determinants of life expectancy:

“Whole person” prognosis--
78 white male with Stage IV NSCLC

Prognosis in months

78 white male with Stage IV NSCLC
--DM, HTN, Ho/CVA

Prognosis in months

78 white male with Stage IV NSCLC
--DM, HTN, Ho/CVA
--20 lb wt. LOSS

Prognosis in months
78 white male with Stage IV NSCLC
--DM, HTN, Ho/CVA
--20 lb wt. LOSS
--ECOG—3(>50% time in bed)

78 white male with Stage IV NSCLC
--DM, HTN, Ho/CVA
--20 lb wt. LOSS
--ECOG—3(>50% time in bed)
--develops hypercalcemia

78 white male with Stage IV NSCLC
--DM, HTN, Ho/CVA
78 white male with Stage IV NSCLC
--DM, HTN, Ho/CVA
--wealthy, good support system

--runs 3 miles/day

N = 6066
Life expectancy prognosis: An approach

The *prognostic matrix* for cancer:
Consider, if you will--
- The characteristics of the specific cancer
- Cancer complications modifying prognosis
- The person who has the cancer
  - Age
  - Comorbid
  - Time from diagnosis
  - Nutritional/functional status (PS)
  - Trajectory
  - Ill defined factors(?????)

### Survival Rates by Initial PPS

<table>
<thead>
<tr>
<th>PPS Level</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>14</th>
<th>30</th>
<th>60</th>
<th>90</th>
<th>180</th>
<th>365</th>
<th>Total Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPS 0.00</td>
<td>100</td>
<td>97</td>
<td>96</td>
<td>95</td>
<td>94</td>
<td>92</td>
<td>90</td>
<td>88</td>
<td>86</td>
<td>85</td>
<td>306</td>
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<tr>
<td>PPS 0.05</td>
<td>100</td>
<td>97</td>
<td>96</td>
<td>95</td>
<td>94</td>
<td>92</td>
<td>91</td>
<td>89</td>
<td>88</td>
<td>87</td>
<td>309</td>
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<tr>
<td>PPS 0.10</td>
<td>94</td>
<td>92</td>
<td>90</td>
<td>88</td>
<td>86</td>
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<td>82</td>
<td>80</td>
<td>78</td>
<td>76</td>
<td>305</td>
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<tr>
<td>PPS 0.20</td>
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<td>72</td>
<td>70</td>
<td>68</td>
<td>66</td>
<td>315</td>
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<tr>
<td>PPS 0.50</td>
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<td>53</td>
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<td>49</td>
<td>47</td>
<td>45</td>
<td>43</td>
<td>41</td>
<td>338</td>
</tr>
</tbody>
</table>

*Survival of 3 weeks*
Question #2: What should we expect?

What symptoms should we expect?:
“Preparedness planning”

- The “near universal” symptoms
  - Fatigue/weakness
  - Anorexia/wt loss
  - Decline in performance status
- Disease specific symptoms
  - Pain
  - Dyspnea
  - Nausea/vomiting—intraabdominal neoplasms
  - Pruritus
  - Edema/ascites
- EOL: Declining cognition, increasing somnolence, delirium

Question #3: Will I survive long enough to benefit?

*Prognosis as a determinant of palliative options:*

- Palliative radiation
  - Whole brain radiation for brain mets
  - Painful bone mets
- Depression
- “Palliative chemotherapy”
  - Prigerson et al. Prospective trial of “Palliative” chemotherapy in those with advanced cancer
    - Not associated with improvement in survival
    - Quality of death was not improved in those with poor PS and made worse in those with good PS

Prigerson et al. JAMA Oncol 2015
The perspective of patients:

Multiple studies have shown that “patients with cancer generally were willing to undergo aggressive treatment with major adverse effects for very small chance of benefit, different from what their well physicians or nurses would choose”.

Communicating about prognosis:

*Hopeful honesty*

How long do I have?
What will that time look like?

- Clarify what information the patient really wants to know by asking
  - What is your understanding of the medical situation?
  - “Please tell me about your main concerns at this point”
- Provide the information, or arrange to do so after team consultation (tell)
- Ask if that has answered the patient’s question, or if there is further information desired
  - Consider using “teach back”

...death hath ten thousand several doors

*For men to take their exits.*

---John Webster, *The Duchess of Malfi*, 1612
Prognosis in perspective:
*The poetry of prediction*

Prognosis

Jacqui O’Kane, DO, FAWM