Patient’s Problems

- Pain (80%)
- Fatigue (90%)
- Weight Loss (80%)
- Lack of Appetite (80%)
- Nausea, Vomiting (90%)
- Anxiety (25%)
- Shortness of Breath (50%)
- Confusion-Agitation (80%)
Delirium

• Global brain failure
• The way most of us here will die
A Big Problem

• Frequent neuro-psychiatric complication
• Distressing to patients and caregivers
• Associated with poor prognosis
• Negative impact on
  – Symptom expression
  – Interventions (e.g. counseling)
  – Communication
  – Decision making
Delirium

- Confusion (time, space, recent memory)
- Hallucinations – tactile!
- Delusions
- Agitation
- Disinhibition: symptoms or emotions!!
2 MAJOR DISORDERS OF COGNITION
DELIRIUM AND DEMENTIA

DELIRIUM:
- Usually acute in onset
- Relatively brief in duration
- Fluctuating level of consciousness
- Can be reversible

DEMENTIA:
- Intellectual deterioration of protracted & usually irreversible nature

- Delirium reported to be most common OMS in Cancer PTS
Differential diagnosis

- Dementia (easy from history)
- Sedation (opioids)
- Obstructive sleep apnea (Reddy 2008)
- Depression (60% delirium referrals)
- Anxiety/ manic episode
- Akathisia
Dementia/ nursing home

• Delirium due to multiple causes !!!: MI, fracture, UTI, urinary retention
• Frequent mixed syndromes: delirium + dementia+ depression+ pain.
Delirium

- Tumor byproducts and host cytokines
- Metabolic Na, Ca, Creat
- OPIOIDS and other drugs (psych!!)
- Chemo
- Sepsis
- Dehydration
- CNS Involvement
COGNITIVE FAILURE IN CANCER PATIENTS

71 PATIENTS APPROACHED

67 CONSENTED

13 (19%)
MMSE <24/30

8/13 (62%)*
DROP OUT BEFORE STUDY COMPLETED

54 (81%)
MMSE ≥ 24/30

6/54 (11%)*
DROP OUT BEFORE STUDY COMPLETED

* p<0.01, χ² Test

Bruera et al, Lancet, 1993
Cognitive Failure (CF)

- Prospective study, 61 consecutive admissions to PCU
- CF determined by MMSE*
- CF present in 16/47 (83%) before death
- 22/66 (33%) improved with or without treatment
- Physician and nurse missed 15/66 (23%) and 13/66 (20%) of episodes of CF

*Mini Mental State Questionnaire
Bruera et al. J Pain Symptom Manage 1993
## Mini-Mental State Exam Results

<table>
<thead>
<tr>
<th></th>
<th>All admissions with ≥ 2 MMSEs (n = 240)</th>
<th>Patients who died (n = 160)</th>
<th>Patients discharged (n = 90)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean initial MMSE score (± SD)</td>
<td>0.77 (0.26)</td>
<td>0.75 (0.27)</td>
<td>0.81 (0.23)</td>
<td>0.073</td>
</tr>
<tr>
<td>Mean final MMSE score (± SD)</td>
<td>0.67 (0.33)</td>
<td>0.59 (0.35)</td>
<td>0.85 (0.14)</td>
<td>0.000</td>
</tr>
<tr>
<td>No. of patients with MMSE score &lt; 0.8 on admission (%)</td>
<td>87 (36.1)</td>
<td>65 (40.4)</td>
<td>22 (24.4)</td>
<td>0.05</td>
</tr>
<tr>
<td>No. of patients with MMSE score &lt; 0.08 on death or discharge (%)</td>
<td>117 (48.6)</td>
<td>100 (62.5)</td>
<td>17 (18.8)</td>
<td>0.000</td>
</tr>
</tbody>
</table>

MMSE: Mini-Mental State Examination; SD: standard deviation.
Terminal Delirium
Memorial Delirium Assessment Scale

![Graph showing average MDAS scores over days from death. The graph compares average MDAS scores for those who are alive and those who are dead. The scores for the alive group remain relatively low and stable, while the scores for the dead group increase significantly close to death.]
Delirium

- 85% cancer pts before death
- Multicausal
- 80% of brain is GABA
- Disinhibition: expression of symptoms and emotions
**The General Hospital (Grey Nuns) of Edmonton**

**SYMPTOM ASSESSMENT GRAPH**

**Date**

<table>
<thead>
<tr>
<th>Day</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
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**HOSP. DAY**

<table>
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<tr>
<th>Day</th>
<th>01</th>
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<th>04</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
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</table>

**HOUR**

<table>
<thead>
<tr>
<th>Hour</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
</tr>
</thead>
</table>

**PAIN**

**SHORTNESS OF BREATH**

**EXTRA DOSES OF MORPHINE**

20 1 1 2 0 1 3 5 4 6 5 4 5 3 1 0 1 0

**ASSESSED BY**

PPP PPP PPP PPP PPP PPP PPP PPP PPP PPP PPP PPP PPP

**Mini-Mental State Score**

<table>
<thead>
<tr>
<th>Code</th>
<th>P - Patient</th>
<th>N - Nurse</th>
<th>NA - Nurse Assisted</th>
<th>F - Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>28</td>
<td>27</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>16</td>
<td>24</td>
<td>28</td>
<td>27</td>
</tr>
</tbody>
</table>

**PSYCHOMOTION**

0 0 0 1 3 3 2 1 0
Delgado-Guay MO, Yennurajalingam S, Bruera E. JPSM 2008; 36(4): 444
Hematological CA consults more delirium (Fadul, JPM 2008)

- 125 consecutive hematol: 51 delirium (41%)
- 125 consecutive solid: 20 delirium (16%, p<0.001)
- Median interval consult/ death: Hematol 13 days; solid 46 days (p=001)
- Hematol <pain &>sedation
- Similar symptom distress score
ICU Pall care consults (Delgado-Guay M, Cancer 2009)

- 88/1607 Pall care consults were ICU (5%)
- 71/88 pts had delirium (81%)
- 31/71 pts delirium resolved (44%)
- 37/88 consults d/c home (42%)
- 12/35 ICU- PCU transfers d/c home (34%)
Frequency and outcome of delirium among cancer patients admitted to the PCU. De La Cruz M et al. The oncologist 2015

• 323/556 (58%) consecutive admissions had delirium (MDAS score >7/30)
• 229(71%) delirium upon admission (41% of admissions) and 94 (29% after admission)
• 26% of delirium episodes reversed
• Overall survival of delirium pts shorter
• Delirium AFTER admission to PCU: lower reversal and worse survival!!
<table>
<thead>
<tr>
<th>Covariate</th>
<th>Effect</th>
<th>HR</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer diagnosis</td>
<td>Hematologic vs solid</td>
<td>1.70</td>
<td>1.17–2.48</td>
<td>.0057</td>
</tr>
<tr>
<td>ECOG status</td>
<td>3 vs. 4</td>
<td>0.56</td>
<td>0.38–0.83</td>
<td>.0041</td>
</tr>
<tr>
<td>Development of delirium</td>
<td>Yes vs. no</td>
<td>5.42</td>
<td>3.30–8.90</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; ECOG, Eastern Cooperative Oncology Group; HR, hazard ratio.
Figure 2. Kaplan-Meier curve of overall survival in patients with delirium on and after admission versus those who did not develop delirium.
Occurrence and Reversibility of Delirium

• Prospective study, admissions to PCU
• 44/104 (42%) delirium on admission
• 71/104 (68%) delirium at some stage
• 46 of 52 who died (88%) had terminal delirium
• 46 of 94 episodes, (49%) reversible
• Reversibility associated with psychoactive medication
• Patients with delirium had poorer survival than controls

Terminal Delirium
Predictors

- Prospective study of 104 APCU patients
- 71 (68%) had delirium: 44 on admission, 27 during admission

<table>
<thead>
<tr>
<th>Categories†</th>
<th>No. (%) of Episodes</th>
<th>Univariate Analysis</th>
<th>Multivariate Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reversed (n = 40)</td>
<td>Nonreversed (n = 31)</td>
<td>Hazard Ratio</td>
</tr>
<tr>
<td>Psychoactive drugs</td>
<td>38 (95)</td>
<td>15 (48)</td>
<td>8.85</td>
</tr>
<tr>
<td>Dehydration</td>
<td>26 (65)</td>
<td>8 (26)</td>
<td>2.35</td>
</tr>
<tr>
<td>Miscellaneous other causes</td>
<td>7 (18)</td>
<td>7 (23)</td>
<td>0.69</td>
</tr>
<tr>
<td>Nonrespiratory infection</td>
<td>10 (25)</td>
<td>8 (26)</td>
<td>0.56</td>
</tr>
<tr>
<td>Hypoxic encephalopathy</td>
<td>11 (28)</td>
<td>22 (71)</td>
<td>0.39</td>
</tr>
<tr>
<td>Metabolic</td>
<td>10 (25)</td>
<td>18 (58)</td>
<td>0.44</td>
</tr>
<tr>
<td>Hematologic</td>
<td>5 (13)</td>
<td>7 (23)</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Lawlor et al. Arch Intern Med 2000
Delirium among advanced cancer patients assessed at the emergency center (Elsayem A et al, Cancer 2016)

- 22/243 patients prospectively assessed had delirium (CAM +) with median MDAS 14/30
- Delirium was mild in 18 (82%) of patients
- MD detected delirium in 13/22 cases (59%)
- No association with age, but association with PS
- ED great place to make early diagnosis of delirium!
<table>
<thead>
<tr>
<th>CAM-Diagnosed Delirium</th>
<th>ED Physician Thought Patient Was Delirious</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>214</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>236</td>
</tr>
</tbody>
</table>

Abbreviations: CAM, Confusion Assessment Method; ED, emergency department.
Data were missing for 7 patients.
<table>
<thead>
<tr>
<th>Category</th>
<th>Subcategory</th>
<th>CAM-Positive Delirium (n = 22), No. (%)</th>
<th>No Delirium (n = 221), No. (%)</th>
<th>P</th>
<th>Missing, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
<td>11 (50)</td>
<td>109 (49)</td>
<td>1.00</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>11 (50)</td>
<td>112 (51)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>&lt;65 y</td>
<td>12 (55)</td>
<td>132 (60)</td>
<td>.68</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>65 y</td>
<td>10 (45)</td>
<td>89 (40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>White</td>
<td>13 (59)</td>
<td>154 (71.3)</td>
<td>.40</td>
<td>5 (2.1)</td>
</tr>
<tr>
<td></td>
<td>Black, African American</td>
<td>6 (27.3)</td>
<td>32 (14.8)</td>
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</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>3 (13.6)</td>
<td>25 (11.57)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0 (0.0)</td>
<td>5 (2.31)</td>
<td></td>
<td></td>
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<tr>
<td>Marital status</td>
<td>Married</td>
<td>18 (81.8)</td>
<td>144 (65.75)</td>
<td>.37</td>
<td>2 (0.8)</td>
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<tr>
<td></td>
<td>Divorced</td>
<td>2 (9.1)</td>
<td>30 (13.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Single, separated, widow</td>
<td>2 (9.1)</td>
<td>45 (20.55)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>Retired/not employed</td>
<td>17 (77.3)</td>
<td>155 (70.45)</td>
<td>.63</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td></td>
<td>Employed</td>
<td>5 (22.7)</td>
<td>65 (29.55)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED acuity</td>
<td>Emergent</td>
<td>8 (36.4)</td>
<td>40 (18.2)</td>
<td>.14</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td></td>
<td>Urgent</td>
<td>14 (63.6)</td>
<td>173 (78.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nonurgent</td>
<td>0 (0.0)</td>
<td>7 (3.2)</td>
<td></td>
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<tr>
<td>ECOG performance status</td>
<td>0</td>
<td>0 (0.0)</td>
<td>38 (17.4)</td>
<td>&lt;.0001</td>
<td>3 (1.2)</td>
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<tr>
<td></td>
<td>1</td>
<td>2 (9.1)</td>
<td>112 (51.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2 (9.1)</td>
<td>23 (10.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>13 (59.1)</td>
<td>40 (18.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5 (22.7)</td>
<td>5 (2.3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CAM, Confusion Assessment Method; ECOG, Eastern Cooperative Oncology Group; ED, emergency department.
Delirium Recall (Bruera E et al, Cancer 2009)

- 99 Patients with Complete resolution < 72hs before
- HYPO 20% ; HYPER 13%; MIXED 67%
- 250 Contributing Factors
- 73/99 Patients (74%) Remembered DELIRIUM !!!!
- 59/73 Recall expressed distress (81%); vs. 11/26 No Recall (42%); p = 0.01
<table>
<thead>
<tr>
<th>Category</th>
<th>No. (%)</th>
<th>No. of Evaluable Reports (%)</th>
<th>Median Distress Level (Q1-Q3)</th>
<th>$P^*$</th>
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</thead>
<tbody>
<tr>
<td>Remember</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>26 (26)</td>
<td>25 (96)</td>
<td>2 (0-4)</td>
<td>.03</td>
</tr>
<tr>
<td>Yes</td>
<td>73 (74)</td>
<td>69 (94)</td>
<td>3 (1-4)</td>
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</tr>
<tr>
<td>Delirium subtype</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypoactive</td>
<td>20 (20)</td>
<td>19 (95)</td>
<td>2 (0-3)</td>
<td>.32</td>
</tr>
<tr>
<td>Hyperactive</td>
<td>13 (13)</td>
<td>13 (100)</td>
<td>2 (2-4)</td>
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<tr>
<td>Mixed delirium</td>
<td>66 (67)</td>
<td>62 (94)</td>
<td>3 (1-4)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>53 (54)</td>
<td>49 (92)</td>
<td>3 (1-4)</td>
<td>.67</td>
</tr>
<tr>
<td>Female</td>
<td>46 (46)</td>
<td>45 (98)</td>
<td>3 (1-4)</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>76 (77)</td>
<td>74 (97)</td>
<td>2.5 (1-4)</td>
<td>.40</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>23 (23)</td>
<td>20 (86)</td>
<td>3 (2-4)</td>
<td></td>
</tr>
</tbody>
</table>

* $P$ value reflects comparison in median distress level for each category.
# Delirium: Bedside Babel

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Patient/Family Caregiver</th>
<th>Patient/Nurse</th>
<th>Patient/PCS</th>
<th>Family Caregiver/Nurse</th>
<th>Family Caregiver/PCS</th>
<th>Nurse/PCS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>WK (P)</td>
<td>n</td>
<td>WK (P)</td>
<td>n</td>
<td>WK (P)</td>
</tr>
<tr>
<td>Auditory hallucinations</td>
<td>93</td>
<td>0.38 (&lt;.01)</td>
<td>79</td>
<td>0.19 (&lt;.01)</td>
<td>92</td>
<td>0.2 (.02)</td>
</tr>
<tr>
<td>Delusional thoughts</td>
<td>95</td>
<td>0.29 (&lt;.01)</td>
<td>80</td>
<td>0.15 (.09)</td>
<td>93</td>
<td>0.1 (.26)</td>
</tr>
<tr>
<td>Time orientation</td>
<td>91</td>
<td>0.28 (&lt;.01)</td>
<td>74</td>
<td>–0.08 (.4)</td>
<td>87</td>
<td>–0.02 (.79)</td>
</tr>
<tr>
<td>Place orientation</td>
<td>91</td>
<td>0.26 (&lt;.01)</td>
<td>74</td>
<td>–0.01 (.93)</td>
<td>87</td>
<td>0.06 (.43)</td>
</tr>
<tr>
<td>Psychomotor agitation</td>
<td>94</td>
<td>0.25 (&lt;.01)</td>
<td>79</td>
<td>0.13 (.12)</td>
<td>90</td>
<td>0.09 (.26)</td>
</tr>
<tr>
<td>Tactile hallucinations</td>
<td>93</td>
<td>0.18 (.02)</td>
<td>79</td>
<td>0.09 (.37)</td>
<td>91</td>
<td>–0.003 (.97)</td>
</tr>
<tr>
<td>Visual hallucinations</td>
<td>96</td>
<td>0.45 (&lt;.01)</td>
<td>78</td>
<td>0.14 (.01)</td>
<td>91</td>
<td>0.21 (.01)</td>
</tr>
</tbody>
</table>

PCS indicates palliative care specialist; n, effective sample size; WK, weighted kappa.
Delirium
Different Settings, Different Patients

• Settings
  – Post-operative
  – Medical-surgical units
  – Critical care
  – Cancer

• Patients
  – Old vs. young
  – Non-cancer vs. cancer
  – Reversible vs. terminal delirium
Delirium management

• Treat reversible causes
  – Drugs
  – Infection
  – Metabolic causes
  – Structural causes

• Palliation
  – Non-pharmacologic measures
  – Pharmacologic measures
    • Neuroleptics—haloperidol, chlorpromazine, olanzapine, risperidone, quetiapine
    • Benzodiazepines?!?
    • Dexmedetomidine
Opioid induced neurotoxicity (OIN)

- severe sedation
- cognitive failure
- hallucinosis/delirium
- myoclonus/grand mal seizures
- hyperalgesia/allodynia
O.I.N. Diagnosis

- Cognitive Failure
- Myoclonus
- Hyperalgesia
- Tactile hallucinations

History Of:

- High opioid dose
- Prolonged time
- Borderline cognition
- Decreased glomerular filtration
Risk Factors for OIN

- High opioid dose
- Prolonged opioid exposure
- Pre-existing borderline cognition/delirium
- Dehydration
- Renal failure
- Other psychoactive drugs
- Opioids with mixed agonist/antagonist activity
Which drug to choose?

1. Delirium/ Opioid induced neurotoxicity:
   All opioids can cause it. Opioid rotation works by eliminating the offending drug.
Opioid Rotation

- Retrospective Study of 80 Rotations for OIN in PCU
- Symptoms of OIN improved in 58/80 (73% $p<0.01$)
- Pain control improved significantly 4.4 ± 2.3 to 3.6 ± 2.0 $p<0.04$)
- Dose was significantly lower than that thought to be equianalgesic 477 ± 1535 vs. 366 ± 593 ($p<0.04$)

De Stoutz et al. J Pain Symptom Manage; 1995
16 years later...

• Recognized syndrome
• Rotation fully established for management
• Translational research: multiple sub- mu, EAA/ NMDA, active opioid metabolites- all 3!!
• Methadone (better pain, decreased OIN, less cost, billions saved)- orphan drug (all patented ones funding professors to hit it )
Delirium management

1. Screening/ early (or late) diagnosis
2. Look for reversible causes
3. Pharmacological treatment
4. Environmental control
5. Bedside nurse/ referring MD education
6. Family education/ counseling
MDAS
Memorial Delirium Assessment Scale

ITEM 1 – REDUCED LEVEL OF CONSCIOUSNESS (AWARENESS):
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 2 – DISORIENTATION:
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 3 – SHORT-TERM MEMORY IMPAIRMENT:
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 4 – IMPAIRED DIGIT SPAN:
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 5 – REDUCED ABILITY TO MAINTAIN AND SHIFT ATTENTION
- 0: none
- 1: mild
- 2: moderate
- 3: severe
ITEM 6 – DISORGANIZED THINKING
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 7 – PERCEPTUAL DISTURBANCE:
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 8 – DELUSIONS:
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 9 – DECREASED OR INCREASED PSYCHOMOTOR ACTIVITY:
- 0: none
- 1: mild
- 2: moderate
- 3: severe

ITEM 10 – SLEEP-WAKE CYCLE DISTURBANCE (DISORDER OR AROUSAL):
- 0: none
- 1: mild
- 2: moderate
- 3: severe

TOTAL __________
Other tools

• CAM
• DRS
• DSM TN criteria interview
The purpose of drug treatment of delirium

1. Drugs are unable to reverse delirium
2. Eliminate hyperactive features (delusions, hallucinations, psychomotor agitation)
3. Sedation when other measures fail
Delirium
Different Settings, Different Patients

[Intervention Review]

Drug therapy for delirium in terminally ill adult patients

Bridget Candy¹, Kenneth C Jackson², Louise Jones¹, Baptiste Leurent¹, Adrian Tookman¹, Michael King³

There is limited evidence from clinical trials on the role of drug therapy for the treatment of delirium in terminally ill patients. The key feature of delirium is a decreased level of consciousness (awareness). People may experience impaired memory, thinking and judgement, and become disorientated. They may experience distressing hallucinations or delusions. It occurs frequently in patients with terminal illness, and may be caused by the illness itself or occur as a side effect of drug treatments for symptom management. Our search of the international literature for trials of drug therapies for the treatment of delirium in patients with terminal illness yielded one small study, and therefore it was not possible to assess the effectiveness of drug treatment options. It is hoped that this review will provide an incentive for further research.
Haloperidol

• Onset: 30-60 min; dose 0.5-5 mg, half life 18 hs, metabolized and into urine.
• Time to peak: oral 2-6hs; IM 20 min
• DPM blocker
• Extrapyramidal (less in autonomic neuropathy?), tardive diskynesia, NMS
• Q-T prolongation, more IV
Pharmacological Management

• Haloperidol IV/ SC/ PO. Dose: ???.
• “loading (up to 5 mg/ dose q1h) and maintenance”
• “regular (2mg q 6h, etc) and breakthrough (q1-2h)”
• Wide dose, less extrapyramidal in cancer (autonomic ?)
Should every cancer patient with delirium be on regular haloperidol?

- Hyperactive and mixed YES
- In cancer 80% are MIXED
- In PURE hypo no evidence, prn needed in case of change to mixed

- 167/266 consecutive PCU admissions (63%) delirium treated with haloperidol 1\textsuperscript{st} line
- 128 (77%) only haloperidol (71% discharged alive)
- 39 (23%) required neuroleptic rotation (41% discharged alive)
- Median (IQR) H dose: 5 (3-7) mg/day
Then benzo story

• Most common drugs !!!
• Breitbart RCT worsened delirium
• Add to haloperidol en severe agitation (VS change to chlorpromazine, methotrimeprazine)- on a temporary basis
• Palliative sedation
Environment control

1. Excessive or NO light
2. Loud noises (TV, sitter on cell phone)
3. Stimulation (visitors, consultants, family)
4. Large clock/calendar
5. Familiar objects, sounds smells
6. Do not ask for consent/debate
Bedside RN/ referring MD

- Diagnosis (frequently made by PC team)
- Need to search for reversible causes
- MAJOR med changes needed!!
- Disinhibition!! “patient in a lot of pain”, decision making
- NOT always opioid-induced, haloperidol best drug (no, not akathisia, running from taxpayers with AIG bonus pay)
- Bedside RN support!! (distress) mainly with education and good patient/family care!!
Family

- Global brain dysfunction (blood products, poor quality fuel)
- Very common and poor prognosis
- Disinhibition of symptoms and emotions
- Environmental control
- Expressive/ supportive counseling!!! High distress
COUNSELING

1. Patient
   - Brief conversations
   - Avoid Confrontation – Avoid stimulation (hyperactivity)
   - Reassurance: familiar objects, people and sounds

2. Family
   - Monitor behavior regularly
   - Explain the mechanism of delirium
   - Reassure regarding physical suffering
   - Major cause of conflict!!

3. Staff
   - Difference between pain and agitated delirium
   - Aggressive behavior by patient
   - Family distress and dissatisfaction
   - Importance of consistent behavior!

   team approach!
Conclusions

• Delirium will develop in more than 80% of palliative care patients
• It is a source of distress and conflict
• It is severely underdiagnosed by HCPs
• The best management is to eliminate precipitating factors
• Haloperidol remains the main drug
• Communication/education is a major intervention