The Hospice Vitals
Overview of Symptom Control at the End of Life

Guido V. DeJesus, M.D., F.A.C.P.
Associate Professor of Clinical Medicine
LSUHSC Department of Medicine – Baton Rouge
Associate Medical Director
Hospice of Baton Rouge
Our intentions...

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<th>Curative</th>
<th>Palliative</th>
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<td><strong>Goal</strong></td>
<td>Cure</td>
<td>Comfort</td>
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<td><strong>Recipient</strong></td>
<td>Individual</td>
<td>Group</td>
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<td><strong>Assessment</strong></td>
<td>Objective &gt; Subjective</td>
<td>Subjective &gt; Objective</td>
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<td><strong>View of Death</strong></td>
<td>Negative</td>
<td>Positive</td>
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<tr>
<td><strong>Emphasis of Care</strong></td>
<td>Physical &gt; Social / Emotional / Spiritual</td>
<td>Physical = Social = Emotional = Spiritual</td>
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But there is a common denominator...
“To cure sometimes, to relieve often, to comfort always – this is our work. And the second is like unto it – thou shalt treat thy patient as thou wouldst thyself be treated.”

Sir William Osler
A “Good Death”???

• Control of pain and other symptoms
• No inappropriate prolongation of life
• Relieve burden on family
• Maintain a sense of control
• Strengthen relationships with loved ones

What happens now...

TIME

% EFFORT

CURATIVE

REFERRAL

BEREAVED

"the talk"???

DIAGNOSIS

REFERRAL

DEATH
How we die

% BASELINE FUNCTION

TIME

DEATH

DEATH
How we die

- TIME OF APPARENT CLINICAL DECLINE
- DEATH
- % BASELINE FUNCTION
- TIME
What should happen...

- Curative
- Palliative
- Hospice and Palliative Medicine (HPM)
- Bereavement

% Effort vs. Time

Disease

Referral

Death

"the talk"???
Major aspects of HPM

- Symptom control at EOL – total suffering
- Medical decision making
- Futility
- Prognostication
- Withdrawing / withholding aggressive measures
- Artificial hydration / nutrition
- Grief and bereavement
- Hopes and goals
Barriers to Effective EOL Care

• Health care delivery system – quantity vs quality of life
• Belief that there is nothing more to offer
• Belief that death is the result of physician failure
• Belief that there are no proven effective interventions
• Misconceptions about field of HPM
  – Too depressing
  – Too “touchy-feely”
  – Lack of professional satisfaction
• Fear of causing addictive behavior and hastening death
• Discomfort in transitioning treatment
• Absence of HPM from medical school and residency curricula
  – Lack of teaching faculty and clinical research
Symptom Control
Total suffering

- Physical
- Social
- Emotional
- Spiritual
“Hospice Vitals” *

- Pain**
- Shortness of breath**
- Nausea and vomiting**
- Delirium / agitation**
- Constipation**

* TOTAL SUFFERING = PHYSICAL + SOCIAL + EMOTIONAL + SPIRITUAL

** TWO-FOLD APPROACH: SOURCE CONTROL AND SYMPTOM CONTROL
Pain
Types of pain

- Nociceptive
  - Somatic
  - Visceral

- Neuropathic
  - Central
  - Peripheral
Transduction
Transmission
Modulation
Perception
Reporting
Importance of total suffering

Spinal Nucleus of Nerve V
VII IX X
Dorsal Column
Medial Lemniscus
Neotrigeminothalamic Tract

Cortex
Thalamus
Periaqueductal Gray Matter
Nucleus Raphe Magnus
Corticospinal Tract
Sympathetic Stimulation
Dorsal Horn (B)
Substantia Gelatinosa (C)
Spinal Ganglion
Spinothalamic Tract
Spinal Cord
Pathophysiology of pain

Transduction
- physical
- electrical

Transmission
- excitatory
- inhibitory

Modulation
- amplify
- dampen

Perception
- locations
  - cortex
  - limbic system
  - RAS

Reporting

SOURCE CONTROL
- antiinflammatories
- acetaminophen
- opioid analgesics
- local anesthetics
- anticonvulsants

NMDA antagonists
- GABA agonists
- opioid analgesics
- anticonvulsants
- device-based therapy

opioid analgesics
- NMDA antagonists
- GABA agonists
- SNRI agents
- nonpharmacologic
  - invasive
  - noninvasive

influenced by
- physical
- social
- emotional
- spiritual

TOTAL SUFFERING
Opioids: basic considerations

• **Oral route** preferred / start with single short-acting drug
  – Other options exist (invasive and noninvasive).
  – Comorbidities may influence choice of medication.

• Combination therapy- **long-acting** (round-the-clock coverage) and **short-acting** agents (breakthrough pain).
  – Reassessment should be frequent
  – Determine opioid requirements
  – Adjust long-acting agent as needed

• **Side effects**
  – **Common**: nausea, vomiting, constipation, dry mouth, sedation, pruritus
  – **Uncommon**: respiratory depression, seizures, myoclonus, delirium, hallucinations, anaphylactoid reactions, miosis, urinary retention
Pain management: adjuvant drugs

- Antidepressants
  - Tricyclic antidepressants
  - Selective serotonin reuptake inhibitors: depression
    - Serotonin-norepinephrine reuptake inhibitors
- Anticonvulsants
- NMDA antagonists (opioid vs nonopioid)
- \( \alpha_2 \) agonists
- Corticosteroids
- Bisphosphonates
- Local anesthetics
- Others
Treatment of pain in terminally ill

- Source control
  - Nociceptive
  - Neuropathic
  - Medical
    - Opioid
    - Nonopioid
      - Analgesic
      - Adjuvant
    - Other "hospice vitals"

- Symptom control
  - Nonmedical
    - Noninvasive
    - Invasive
Nausea / vomiting
Vomiting – a neurologic problem

area postrema → CTZ

central pattern generator

CN X
- somatic
- visceral

CN VIII

↑ ICP

cortex
- psychological
- structural

blood / CSF
- somatic
- visceral

• oropharynx
• esophagus
• stomach
• skeletal musculature
Vomiting reflex “rule of 5’s”

- Triggers
  - CN X
  - CN VIII
  - direct
  - ICP
  - cortex

- Mediators
  - dopamine
  - acetylcholine
  - histamine
  - serotonin
  - substance P

- NM effects
  - glottis closure / palate elevation
  - ↑ mucosal secretions
  - ↓ LES tone
  - diaphragm / abd mm ctx
  - proximal relaxation and pyloric ctx

- Source control
- NT inhibitors
  - adverse effects

- Antinflammatory
- Antimotility
- Antisecretory
- Antineuronal
Nausea and vomiting: selected agents

- **Anticholinergic** – scopolamine
- **Antihistamine** – promethazine, hydroxyzine, meclizine, diphenhydramine
- **Antidopaminergic**
  - Phenothiazines: prochlorperazine, chlorpromazine
  - Butyrophenones: haloperidol, droperidol
  - Benzamides: metoclopramide, trimethobenzamide
- **Antiserotonin**
  - Ondansetron, granisetron, palonosetron, dolasetron
- **Anti-substance P** -- aprepitant
- **Others**: corticosteroids, olanzapine, benzodiazepines, octreotide, nonpharmacologic modalities
Dyspnea
Overview of dyspnea

• Defined as the abnormally uncomfortable awareness of breathing.
  – Multifactorial - physiologic, psychologic, social, environmental
  – Changes in rate or depth do not always imply dyspnea.

• Up to 70% of patients report dyspnea in the last six weeks of life.

• Numerous causes possible, best categorized as:
  – **Cardiac**: pericardium, myocardium, endocardium
  – **Pulmonary**: pleural, vascular, alveolar, interstitial, small / large airway
  – **Neuromuscular**
  – **Other** (ie- anxiety, anemia, hypercatabolic state, drugs, etc.)
Treatment of dyspnea in the terminally ill

Source control

Physical
- Cardiac
- Pulmonary
- Neuromuscular
- Other

Social

Emotional

Spiritual

Symptom control

Medical
- Opioids
- Others
  - Benzodiazepines
  - Oxygen
  - Bronchodilators
  - Corticosteroids
  - Mucolytics
  - Antitussives
  - Antisecretory

Nonmedical
- Conservative
- Aggressive

other “hospice vitals”
Dyspnea: approach to therapy

• Source control
  – Not always the terminal disease!

• Symptom control
  – Avoid excessive exertion
  – Reposition (upright most beneficial)
  – Address possible contributing social / spiritual issues
  – Avoid bedside overcrowding
  – Control / loosen airway secretions
  – Optimize air circulation (ie- fan, humidifier, etc.)
  – Aspiration precautions (ie- feeding- related)

• Role of opioids – systemic route preferred

• Role of oxygen – NC preferred in most
Delirium
Causes of Delirium: DEMISE*

- Drugs (administration / withdrawal)
- Endocrine (thyroid, adrenal)
- Metabolic (liver, renal)
- Infection / ischemia / inflammation
- Substrate (oxygen, glucose, thiamine)
- Electrolyte / electrical

* Must also consider emotional, social, and spiritual components.
Treatment of delirium in the terminally ill

Source control
- Physical
- Spiritual
- Social
- Emotional

Symptom control
- Medical
  - Antipsychotics
  - BDZs
- Nonmedical

Other "hospice vitals"
Constipation
Overview of Constipation

• **Very common** problem in terminally ill patients and often multifactorial.
  – At least 80% of patients (95% if on opioids for analgesia) need laxatives in the last six weeks of life.
  – **Fatigue is a major contributor** (loss of privacy, loss of gastrocolic reflex, limited mobility).

• Many cases are related to dietary fiber deficiency and/or primary motility disturbances of the GI tract.
  – **Secondary causes** should be sought and addressed.
Treatment of constipation in the terminally ill

Source control
- Primary
  - ↓ fiber intake
  - Prolonged immobility
  - Primary ↓ GI motility
- Secondary
  - Endocrine
  - Structural
  - Pharmacologic
  - Neurologic

Symptom control
- Bulk
- Softeners
- Stimulant
- Osmolar
Role of Palliative Sedation

• The “last resort” in refractory suffering
• vs euthanasia vs physician-assisted suicide
• Principle of double effect
  – Act must be good or neutral
  – Intent to do good
  – Good effect not achieved via bad effect
  – Good effect must outweigh bad effect
• Barbiturates, BDZs, neuroleptics, or propofol - titrate to symptom control accepting sedation.
  – Opioids NOT used for this purpose.
Major aspects of HPM

• Symptom control at EOL – total suffering
• Medical decision making
• Futility
• Prognostication
• Withdrawing / withholding aggressive measures
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• Grief and bereavement
• Hopes and goals

• FIVE THINGS