Chronic Critical Illness: Opportunities and Challenges

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Chronic Critical Illness: Triumph of technology or failure of communication?

- Background
- Metabolic Syndrome
- Outcomes
- Ethics
- Future directions

Intensive Care

Chronically Critically III
1. Defined by tracheotomy
2. DRG 483 (541/542) – MV > 96 hours
3. Consensus group recommends >21 days

>21 days is a unique group

<table>
<thead>
<tr>
<th></th>
<th>Tracheotomy &gt;96h</th>
<th>Ventilator &gt; 21 days</th>
</tr>
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<tbody>
<tr>
<td>In hospital cost</td>
<td>$140,409</td>
<td>$143,389</td>
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<tr>
<td>One year mortality</td>
<td>48%</td>
<td>58%</td>
</tr>
<tr>
<td>Functional status</td>
<td>Weekly care giving</td>
<td>Severely limited</td>
</tr>
<tr>
<td>One Year cost</td>
<td>$266,105</td>
<td>$423,596</td>
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National Association for the Medical Direction of Respiratory Care Consensus Statement 2008

Cox, Crit Care 2007;11:R9
We know the American population is getting older.


Black and Hispanic Populations are growing


Zilberberg. BMC Health Services Research 2008;8:242
The LTAC business is booming

- 1997
  - 13,732 admissions
  - $484 million
  - 38.1/100M after critical illness
  - One year mortality 50.7%

- 2006
  - 40,353 admissions
  - $1.325 billion
  - 99.7/100M after critical illness
  - One year mortality 52.2%

Khan JM, et al. JAMA 2010;303 (22):2253-2259

Distinct Metabolic Syndrome

The spectrum of critical illness


We were never prepared for this...

Mechanick. Curr Opin Clin Nutr and Met Care 2005;8:33

We are left with...

- Muscle wasting and Protein Calorie Malnutrition
- Impaired immune-neuroendocrine axis
- Hyperglycemia
- Bone disease
- Neuromuscular abnormalities

Clinical manifestations

- Prolonged respiratory failure
- Wasting
- GI Failure
- Skin breakdown
- Multiple infections
- Cognitive failure
Endocrine Changes

Adrenal Exhaustion Syndrome

Thyroid regulation

Metabolic Bone Disease

Immune Exhaustion

Neuromuscular dysfunction

- Hyperglycemia and malnutrition
- Exposure to resistant hospital-acquired organisms
- Multiple courses of antibiotics
- Indwelling lines and catheters

- The neuromuscular component of MODS
  - Myopathies, acute neuropathies, cognitive dysfunction

- Prognosis
  - 37% mortality
  - 18% incomplete recovery
  - 45% complete recovery (mean 4.5 months)
Outcomes

40 will survive
- 22 will be institutionalized
- 9 will be homebound
- 9 will have good physical functioning

Survival is similar to some malignancies

Brain Dysfunction

The Symptom Burden

Prevalence of physical and psychological symptoms among chronically critically ill patients


Can we predict who is at risk?

Outcomes after abdominal aortic aneurysm repair in those with prior of mod body volume: a single institution experience

Scheinhorn DJ. Chest 2007;131:76

Who are these patients?

- 10-15% of all ICU patients
- The majority are elderly, and were functionally independent before their ICU stay
- An acute insult, added to other co morbidities leads to a catastrophic illness with ventilator dependency
- An infection usually precipitates PMV
- 40% are surgical patients

Schinhorn DJ. Chest 2007;131:76

Organ System Failure Impacts Survival


Ethics

Death used to be inevitable… now it’s a choice

Autonomy
Distributive Justice: Rationing or rational...

Beneficence and non-beneficial care
- Hospitalization >$100,000 with survival <100 days
  - 22% of DRG 541/542
  - 41% of patients ventilated > 21 days
  - 1 in 5 are readmitted in 30 days

Cox. Critical Care. 2007, 11: R9

The futility gap
"[Medical] care can be considered futile if the best an ICU stay can accomplish is an outcome that patients find unacceptable or even worse than death"


"A Good Save"
- Surgeons pride themselves on total care of the patient and the total outcome
- "The surgeon is ideally trained to organize and sustain the rescue attempt...the surgeon is poorly positioned to abort the rescue attempt when it has failed."

Buchman et al. JACS 154, 2002

Non-malfeasance
- Do not do harm through acts of omission or commission
- Communications challenges
- "Surgical buy-in"

We are not the best communicators
- Don't have enough information to prognosticate
- Never want to take away hope
- "We" are only human
- For surgeons it is difficult to accept poor outcomes

Keenan SP. Critical Care Med 1997:25:1324-31
Do we provide false hope?

What we do tell them…

Why mechanical ventilation needed 97%
Why tracheotomy needed 99%
Tracheotomy and ability to speak 84%
Tracheotomy and ability to eat 75%


What we don’t tell them…

What do patients want to hear?

■ We don’t take away hope by sharing the truth
■ Physician explanations strongly influence the interventions patients will accept


What we can tell them?

■ One year mortality is very high
■ A large proportion will remain dependent on life-sustaining therapy
■ If they don’t get home in 6 months it is unlikely they will ever get home
■ Less than 10% are oriented, ambulatory and independent at 1 year
■ Patients with a GCS <8 are 6.5 times more likely to fail weaning


Decision making at the transition from acute to chronic

1. Nature of the patient’s illness
2. Prognosis including ventilator dependence, function and quality of life
3. Symptom burden
4. Potential complications
5. Level of care after hospitalization
6. Alternatives to continuation of treatment

Carson. Am J Respir Crit Care Med 159:1568-1573
MacIntyre. Chest 2005;128:3937
Strategies to Improve communication

- Family meetings within 72 hours
- Distribution of printed materials for families about what to expect in the ICU
- Ethics consultations when conflicts arise

“Surgical Buy-in”

Palliative Care

“Palliative care has a role in the treatment of all patients requiring PMV”

- Palliative care is focused on the relief of pain, dyspnea and anxiety
- Include early to help the patient and family prepare for the road ahead
- When restoration of health is no longer possible, comfort should be the primary goal

Palliative care in surgical patients

- Consensus Panel
  - Members of ACS Palliative Task Force
  - Critical Care Surgeons
  - Palliative Medicine

- Objective: to identify triggers for Palliative Care Consult in the SICU
  - Family request
  - Futility per medical team
  - Conflict among team or with advanced directive
  - Death expected during same SICU stay
  - SICU Stay > 1 mo
  - Diagnosis with median survival < 6 mo
  - Multi organ failure > 3 systems

CCI patients require a Multidisciplinary approach
Respiratory Care Unit

- Mount Sinai Medical Center RCU
  - 14 bed unit for patients from all ICUs post trach
  - Closed but close
  - Recognition that patients have moved to different phase of care
- Financials
  - Increases ICU throughput
  - May exceed hospital payment for DRG

Other Locations

- Skilled Nursing facilities
  - Patients require advanced directives
  - Not all have pulmonologists on staff
- Home ventilators
  - Little data on prevalence and outcome
  - Most common for neuromuscular disease
Approaches to High Loss Encounters:
Show Potential To Improve Quality and Margin

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<th>Approaches</th>
<th>High-Level Description</th>
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<td>- Care Process Improvement</td>
<td>- Expanded inpatient palliative care programs at System hospitals, including consults as a core component.</td>
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<td>- Inpatient Palliative Care Initatives</td>
<td>- Engage in a comprehensive strategic planning process for palliative care at Partners.</td>
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<td>- Pre-Procedure Discussion</td>
<td>- Discuss risks of elective procedures with high-risk patients &amp; family</td>
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<td>- Transfer-In Prioritization</td>
<td>- Meet with AMC physicians and surgeons to discuss developing a way to apply more scrutiny to transfers in</td>
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Post ICU clinics

- Train intensivists to think longitudinally and think about patient-centered outcomes
- Study of post-ICU clinics in UK
  - Identify ICU related complications early
  - Improve quality of life, and provide goal-focused care
  - Prevent bounce backs


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Medical Orders for Life-Sustaining Treatments (MOLST)

- It is a universal order form which is accepted by EMS and across multiple facilities
- Recommended for patients whose PCP would "not be surprised" if they died within a year
- Individuals can either encourage or limit life-sustaining treatment
- Patients are still encouraged to have a proxy

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Surviving Intensive Care

- CCI is a distinct clinical syndrome
- Need to better define this population
- Develop health outcomes and prediction models
- Improve communication
- Improve public education

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Medical Orders for Life-Sustaining Treatments (MOLST)

Angus, Intensive Care Med 2003;29:368-377

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MOLST/POLST

- MOLST will be piloted in Central MA in 2009
“The existence of chronic critical patients is a testament to modern medical technology. Our challenge now is to define an ethical philosophy of care for [these patients] that includes what technology can accomplish and what it cannot.”

- DM Nierman

Thank You

- Selwyn Rogers
- Suellen Breakey
- Daryl Owens