Dying Phase

How Do We Identify?

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Some Facts……

- **Diagnosis, Therapeutics & Prognosis** are the three pillars in medicine.

- Although the ‘Book of Prognostics’ written by ‘father of western medicine’ (Hippocrates) in **400 B.C**, the prognosis skill is underdeveloped in modern medicine for many reasons!
  - No formal medical training (Parks, CM 1972, Morita et al 1998)
  - Enormous developments in diagnostic & therapeutic skills during the last century (Christakis, NA 1997)
  - Fear of damaging the patient’s hope and patient-doctor relationship (Gorden, EJ 2003)
Recognising the ‘dying phase’ is still a major issue for health professionals in the Community & Hospitals.

The prognosis & end of life care management are an ‘overlooked aspect of medical care’ until the ‘modern hospice movement’ is pioneered in the late 1950s by Dame Cicely Saunders (UK).
What are the Common Physiological Changes usually noted in the ‘Dying Process’?

1. Weakness / Fatigue
2. Decreasing Appetite / Food intake / Wasting
3. Decreasing Fluid intake / Dehydration
4. Decreasing Blood Perfusion / Renal Failure
5. Neurological dysfunction: An Overview
   I. Decreasing Level of Consciousness
   II. Terminal Delirium
   III. Changes in Respiration
   IV. Loss of ability to swallow
   V. Loss of Sphincter Control
6. Pain
7. Loss of Ability to close the eyes
8. Changes in Medication Needs
Weakness/Fatigue

Usually fatigue increases as the patient gets closer to death

- In the last hours of life, it is likely that the patient will not be able to move around in the bed or raise his or her head

- Joints may become stiff / uncomfortable if they are not moved

- Continuous pressure on the same area of skin, particularly over bony prominences, will increase the risk of skin ischemia and the development of pressure ulcers
  - These may become painful or odoriferous if they become infected
  - They are more easily prevented than treated
Decreasing Appetite/Food Intake, Wasting

1. Most patients lose their appetite and reduce food intake long before they reach the last hours of their lives.

2. There are many causes, most of which become irreversible close to death.

3. Families and professional caregivers often:
   - Interpret cessation of eating as “give up” or
   - Worry that the patient will “starve to death”
Decreasing Appetite/Food Intake, Wasting -2

❖ Discussion points to anxious family members:

- **Bed bound patient’s energy requirement is very low** (don’t compare with yourself with the patient & it is human nature to compare & having ‘feeling of guilt’).

- Patients use their reserve energy from liver (glycogen) & under the skin (fat) for their minimal requirement.

- **Forcing oral food intake may give satisfaction to family but suffocation to patient & may nauseating with poor swallowing ability**

- **Anorexia may be protective**

- **Risk of aspiration**

- **Clenched teeth express desires, control**
Dehydration

1. Most patients also reduce their fluid intake, or stop drinking entirely, long before they die.

2. If they are still taking some fluid but are not eating, salt-containing fluids such as soups, soda water, sport drinks, and red vegetable juices can:
   - Help to maintain electrolyte balance
   - Minimize the risk of nausea from hyponatremia

3. Decreased fluid intake usually heightens onlookers’ distress as they worry that the dehydrated patient will suffer, particularly if he or she becomes thirsty.
Decreasing Blood Perfusion, Renal Failure

1. As cardiac output and intravascular volume decrease toward the end of life, there will be evidence of diminished peripheral blood perfusion

2. Normal symptoms include:
   - Tachycardia
   - Hypotension
   - Peripheral cooling
   - Mottling of the skin (livedo reticularis)
   - Venous blood may pool along dependent skin surfaces
   - Urine output falls as perfusion of the kidney diminishes
   - Oliguria or anuria

3. Parenteral fluids will not reverse this circulatory shut down

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Mottling of the skin (livedo reticularis)
Neurological Dysfunction

1. The neurological changes associated with the dying process are the result of multiple concurrent non-reversible factors, including:
   - Hypoxemia
   - Metabolic imbalance
   - Acidosis
   - Toxin accumulation due to liver and renal failure
   - Adverse effects of medication
   - Sepsis
   - Disease-related factors
   - Reduced cerebral perfusion

2. The neurological changes associated with the dying process may manifest in 2 different patterns that have been described as the "two roads to death"
“Two Roads to Death” from Medscape

Two roads to death

- Confused \(\rightarrow\) Tremulous
  - Restless
  - Normal
  - Sleepy
  - Lethargic
  - Obtunded
  - Semicomatose
  - Comatose
  - Dead

- Hallucinations
  - Mumbling Delirium
  - Myoclonic Jerks
  - Seizures

THE DIFFICULT ROAD
Decreasing Level of Consciousness

1. The majority of patients traverse the "usual road to death"

2. They experience increasing drowsiness, sleep most if not all of the time, and eventually become unarousable

3. Absence of eyelash reflexes on physical examination indicates a profound level of coma equivalent to full anaesthesia

4. Decreasing Level of Consciousness
Terminal Delirium:

1. Delirium may be the first sign to herald the "difficult road to death"

2. It frequently presents as confusion, restlessness, and/or agitation, with or without day-night reversal

3. It may result from any of the standard causes of delirium listed in DSM-IV (American Psychiatric Association, 1994) that can accompany the dying process

4. Agitated terminal delirium can be very distressing to family and professional caregivers who do not understand it

5. Although previous care may have been excellent, if the delirium goes misdiagnosed or unmanaged, family members will likely remember a horrible death "in terrible pain" and may worry that their own death will be the same
Changes in Respiration

1. Changes in a dying patient’s breathing pattern may be indicative of significant neurological compromise

2. Breaths may become very shallow and frequent with a diminishing tidal volume

3. Periods of apnoea and/or Cheyne-Stokes pattern respirations may develop

4. Accessory respiratory muscle use may become prominent

5. A few (or many) last reflex breaths may signal death

6. Families and professional caregivers may frequently:
   - Find changes in breathing patterns to be one of the most distressing signs of impending death
   - Fear that the comatose patient will experience a sense of suffocation

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Loss of Ability to Swallow

1. In the last hours of life, weakness and decreased neurological function frequently impair the patient’s ability to swallow.

2. The gag reflex and reflexive clearing of the oropharynx decline and secretions from the tracheobronchial tree accumulate.

3. These conditions may become more prominent as the patient loses consciousness.

4. Build-up of saliva and oropharyngeal secretions may lead to gurgling, crackling or rattling sounds with each breath.
   - Some have called this the "death rattle" (a term frequently disconcerting to families and caregivers).
   - For unprepared families and professional caregivers, it may sound like the patient is choking.
Loss of Sphincter Control

1. Fatigue and loss of sphincter control in the last hours of life may lead to incontinence of urine and/or stool

2. Both can be very distressing to patients and family members, particularly if people are not warned in advance that these problems may arise
Pain

1. While many fear that pain will suddenly increase as the patient dies, there is no evidence to suggest this occurs.

2. Though difficult to assess, continuous pain in the semiconscious patient may be associated with:
   - Grimacing and continuous facial tension, particularly across the forehead and between the eyebrows.
   - Physiologic signs, such as transitory tachycardia, that may signal distress.

3. Do not over-diagnose pain when fleeting forehead tension comes and goes with movement or mental activity (e.g., dreams or hallucinations).

4. Do not confuse pain with the restlessness, agitation, moaning, & groaning that accompany terminal delirium.

5. If the diagnosis is unclear, a trial of a higher dose of opioid may be necessary to judge whether pain is driving the observed behaviours.
Loss of Ability to Close Eyes

1. Advanced wasting leads to loss of the retro-orbital fat pad, and the orbit falls posteriorly within the orbital socket.

2. As eyelids are of insufficient length to both extend the additional distance backward and cover the conjunctiva, they may not be able to fully appose.

3. This may leave some conjunctiva exposed even when the patient is sleeping.

4. Eyes that remain open can be distressing to onlookers unless the condition is understood.
Changes in Medication Needs

1. As patients approach the last hour of their lives, reassess the need for each medication and minimize the number that the patient is taking.

2. Leave only those medications to manage symptoms such as pain, breathlessness, excess secretions, and terminal delirium and reduce the risk of seizures.

3. Choose the least invasive route of administration:
   - The buccal mucosa or oral routes first
   - The subcutaneous or intravenous routes only if necessary
   - The intramuscular route almost never
Discussion Point
‘Rate of Changes’ in Physiological Symptoms & Functional Status give an idea....

• Changes in the Activity of Daily living (ADLs)

• Changes in these ‘common symptoms’

Whether patient is deteriorating on a monthly basis or weekly basis or daily basis give a rough idea of prognosis

⇒ Months... Weeks... Days.... Hours
Thank You
This Lecture is Prepared from following Online Materials

1. EndLink: An Internet-based End of Life Care Education Program  
   http://endlink.lurie.northwestern.edu  
   http://endlink.lurie.northwestern.edu/last_hours_of_living/part_one.pdf

2. Last Hours of Living: Physiologic Changes and Symptom Management  