Hospice Emergencies

- Spinal cord compression
- Seizures
- Massive exsanguination
- Dyspnea
- Terminal Secretions
Hospice Emergencies

- Most hospice patients are in a home setting and new symptoms are stressful for the family
- Education is critical – anticipate symptoms and prepare patient/family
- Have medication on hand for potential problems
Spinal Cord Compression

- Vertebral column is the most common site for skeletal metastases.
- 5% of patients with cancer develop spinal cord compression.
- Most common tumors associated with spinal metastases: breast, lung, prostate, and lymphoma.
Spinal Cord Compression

- Need a high index of suspicion to find early and prevent neurological damage
- Back pain is the key alerting symptom: typically progressive, unrelenting, excruciating and often not improved with opiates.
- Often there is tenderness to vertebral palpation
Spinal cord compression

- Progression may be rapid and dramatic
- Neurological signs
  - Motor weakness
  - Sensory dysfunction – numbness, paresthesias, loss of tactile sensation
  - Autonomic dysfunction – urinary or bowel incontinence
- The probability for reversibility decreases with increasing neurological impairment
Spinal Cord Compression

- **Diagnosis:** clinical examination, plain spine x-rays, MRI
- **Treatment:** Radiotherapy and corticosteroids are main treatments. Surgical decompression in some patients.
- **Start steroids while pursuing diagnosis.**
- **Even if already paraplegic, radiotherapy may help with pain relief.**
Spinal Cord Compression

• Radiotherapy – 20GY in 5 fractions or 30 GY in 10 fractions. Single high dose treatment has been done.

• Nearly 80% of patients who are ambulatory at time of diagnosis remain so at completion of radiotherapy.

• In one series 78% of patients were non-ambulatory at initial visit with radiation oncologist.
Spinal Cord Compression

- Corticosteroids: dexamethasone 10mg IV then 4-6mg QID po, some have used very high initial dose 100mg IV and 24mg QID po x 3 days, then taper. Long half-life so probably can give just twice a day.
- Steroids decrease cord edema and pain and help preserve neurological function.
Seizures in Hospice Patients

- Pre-existing seizure disorder
  - Controlled
  - Uncontrolled

- Related to hospice diagnosis
  - Potential for seizure – known brain mets., CVA, AIDS, other CNS injury/disease, electrolyte imbalance, medications
  - History of seizure or just potential
Seizures in Hospice Patients

- If there is a potential for seizures have medication on hand – diazepam injectable or rectal, lorazepam, midazolam
- If patient has had a prior seizure continue anti-convulsant as long as possible
  – Consider switching to subcutaneous or rectal phenobarbital when unable to take po.
Seizure in Hospice Patients

- Education is important. Warn family about potential for seizures and have a plan.
- Treat generalized seizures and complex partial seizures. Need to differentiate myoclonus related to opiate toxicity from seizure activity. Benzodiazepines are useful while you figure this out.
Seizures Secondary to Withdrawal of Medications

- Benzodiazepines – with abrupt or rapid withdrawal, especially of short-acting
- Alcohol
- Barbiturates – abrupt or rapid withdrawal
- Tizanidine (Zanaflex) – sudden withdrawal
Seizures related to medications

• Many medications can lower the seizure threshold or otherwise increase the risk of seizures.
  – Often this is related to higher doses
  – Increased risk of seizures if patient has a history of seizures
  – Increased risk if taking several medications that can lower the seizure threshold
Seizures related to Medications

• Tramadol – more likely with concomitant MAO inhibitor or antipsychotics
• Tricyclics
• Bupropion
• Lidocaine, mexiletine, tocainide
• Methylphenidate, amphetamine
• Theophylline
• Rimantidine/amantadine
• Clozapine – 5% with dose 600-900 mg/day
Seizures Related to Medications – Opiates

- Meperidine
  - Toxic metabolite – normeperidine
  - Especially likely in renal insufficiency/failure
- High doses of parenteral opioids can cause neurotoxicity and possible seizures
  - Tx – dose reduction, opioid rotation, benzodiazepine and/or other anticonvulsants
  - Do not use naloxone – it can paradoxically aggravate CNS hyperactivity and could cause pain crisis
Seizures Related to Medications – Less Common

- Erythropoietin – especially in renal failure patients who develop HTN and encephalopathy
- All fluoroquinolones
- Beta-lactamase antibiotics
- Acyclovir, ganciclovir
- Lithium
- Cycloserine (TB med)
- Leukeran – at high doses
Other Causes of Seizures – Metabolic

- Hepatic encephalopathy
- Uremia
- Hyponatremia
- Hypoglycemia
- Hypocalcemia
Treatment

- If no seizure hx. in pt with primary or metastatic brain tumors can stop anti-convulsant prophylaxis
- For acute seizure – diazepam, lorazepam or midazolam
  – Diazepam rectal gel available
- Rectal administration
...Treatment

• Rectal administration
  – Phenobarbital, carbamazepine, valproic acid have good absorption
  – Phenytoin – poor absorption
  – Gabapentin – no absorption
  – Insufficient data on topiramate (Topamax), tiagabine (Gabitril), levetiracetam (Keppra)
  – Lamotrigine (Lamictal) one study, absorbed but slower and to less extent than orally
Hemorrhagic Risk

- Bleeding occurs in approximately 10% of patients with advanced cancer.
- Mechanisms
  - Local, anatomic factors
    - Tumor surface bleeding
    - Tumor erosion into a major vessel
    - Mucositis
  - Bone marrow involvement or suppression
  - Coagulation defects – vit. K deficiency, disseminated intravascular coagulation, accelerated fibrinolysis, liver disease
Palliative Management

• Local measures
  – Packing
  – Compressive dressings
  – Hemostatic agents – gel foam, thrombostat, collagen
  – Vasoconstrictor agents – epinephrine, silver nitrate, alum
Palliative Management of Bleeding

- Special Techniques
  - Radiotherapy
  - Surgery (ligate vessels)
  - Endoscopic interventions
  - Interventional radiology - embolization
Palliative Management of Bleeding

- **Systemic treatments**
  - Vit. K
  - Antifibrinolytic agents – tranexamic acid, aminocaproic acid
  - Transfusion support – platelets and other blood products
  - Octreotide – for GI bleeding, decreases splanchnic blood flow and suppresses gastric acid secretion
Palliative Management of Bleeding

- Be sure patient is not taking aspirin, non-steroidals, Plavix, Coumadin
- At least one case report of a patient taking a Chinese traditional medication which contained NSAID and coumarin derivative
Massive Exsanguination

- Rare but can be devastating for the family if they are unprepared.
- Internal (non visible) exsanguination can lead to sudden death but is not as traumatic to the family.
- Assess potential for bleeding – head and neck tumor, hemoptysis, active GI bleeding, known esophageal varices
Massive Exsanguination

- Prepare patient and/or family for the possibility and have a plan.
- Have dark towels readily available, use dark sheets on the bed
- Opaque trash bags
- Consider placing IV access
- Have medication available – parenteral opiate, parenteral benzodiazepine
Massive Exsanguination

- Main treatment is sedation as patient is often quite anxious and may be dyspneic
- Use an opiate and/or a benzodiazepine as appropriate
Case Study - Exsanguination

- 61 year old man
- Dx 5/02: Squamous cell cancer right base of tongue and tonsil
- Treated with surgery and RT
- Several episodes of bleeding requiring hospitalization.
- Transferred to In-patient hospice 3/21/04
Case Study-Exsanguinination

- Ambulatory, able to eat, mentally clear on arrival to IPU
- Patient and wife did not want patient to bleed out at home
- Initially on Amicar (aminocaproic acid – inhibits fibrinolysis) IV, on 3/23 switched to oral
Case Study-Exsanguination

- Evening of 3/31/04 began bleeding at 8:20 pm. He was sitting by the sink in the bathroom. Large clots and fresh blood. He became weak.
- 8:30pm given lorazepam IM and helped back to bed
- Died peacefully at 9:00 pm
- Wife was calm. Staff was shaken.
Exsanguination – tranexamic acid/aminocaproic acid

- Both are synthetic, antifibrinolytic agents
- Most of drug excreted unchanged in the urine. Need to decrease dose in renal failure
- Main potential complication is thromboembolism
- May be used IV/oral/topical (ex. instilled in bladder)
Dyspnea

• Common symptom at end-of-life
  – SUPPORT study severe dyspnea in 56% of patients with ES COPD, 32% of patients with stage III/IV lung cancer
  – National Hospice Study – dyspnea in 70% of terminal cancer patients
  – One study of last 6 months of patients with CHF – 63% of surrogates reported pt. had severe dyspnea last 3 days of life
  – Prevalence in the life-threateningly ill: 12 – 74%
Breathlessness (dyspnea) . . .

- May be described as
  - shortness of breath
  - a smothering feeling
  - inability to get enough air
  - suffocation
  - uncomfortable awareness of breathing
    (Bruera)
...Breathlessness (dyspnea)

• The only reliable measure is patient self-report

• Respiratory rate, pO2, pCO2, O2 sat. DO NOT correlate with the feeling of breathlessness
Dyspnea is mediated by:

- J-receptors at the junction of capillaries and alveoli – respond to alveolar fluid or microemboli
- Sensory receptors in diaphragm & skeletal muscles
- Peripheral chemoreceptors – hypoxemia
- Central chemoreceptors – increased CO2
Specific Causes – Mnemonic
(UNIPAC – Porter Storey MD)

• B – Bronchospasm
• R – Rales (pulmonary edema/pneumonia)
• E – Effusions/embolism
• A – Airway obstruction
• T – Thick secretions
• H – Hemoglobin low/hypoxemia
Specific Causes - continued

- A – Anxiety
- I - Interpersonal issues
- R – Religious concerns

- 25% no specific cause but muscle weakness or anxiety may contribute
- 75% likely cause identified
General management guidelines

- History, physical examination
- Conceptualize likely causes
- Discuss treatment options, assist with decision making
General management guidelines

- Provide ongoing patient/family education and support
- Involve members of the entire interdisciplinary team
- Reassess frequently
Three Approaches

• Increase ventilatory capacity
• Decrease ventilatory demand
• Alter central perception of dyspnea
Management of breathlessness

- Treat the underlying cause
- Symptomatic management
  - oxygen
  - opioids
  - anxiolytics
  - other medications
  - non-pharmacologic interventions
Oxygen

- Potent symbol of medical care
- Pulse oximetry not helpful
- Expensive, reassess need, consider intermittent use
- Fan may do just as well
- Dr. Bruera study oxygen vs. air – patients consistently preferred oxygen
Newer Technology

- **BiPAP**: Bi-level Positive Airway Pressure
  - Like CPAP but delivers higher pressure during inspiration.
  - Uses a mask

- **CPAP**

- **Vapotherm (now off market)**
  - High flow, vapor-phase hydration system that delivers high flow air or oxygen via nasal cannula
  - Up to 40L/min nasal, 20L/min tracheal
  - Problem with infections: Ralstonia

- **Newer high flow oxygen techniques being developed**
Other medications

- Steroids - May be helpful if dyspnea is related to cough, bronchospasm or inflammation
- Diuretics if dyspnea related to volume overload
- Medications to thin secretions or dry secretions
- Bronchodilators for bronchospasm
Non-pharmacologic interventions . . .

- Reassure, work to manage anxiety
- Behavioral approaches: relaxation, distraction, hypnosis
- Limit the number of people in the room
- Open window
- Use a fan to blow air toward patient
...Non-pharmacologic interventions

- Eliminate environmental irritants
- Keep line of sight clear to outside
- Reduce the room temperature but avoid chilling the patient
Non-pharmacologic interventions

- Introduce humidity
- Reposition
  - elevate the head of the bed
  - move patient to one side or other
- Educate, support the family
Terminal Secretions/Respiratory Congestion ("Death Rattle")

- Common – 44-56% of patients
- Patients usually close to death
  - 52% PPS of 10%
  - 39% PPS of 20%
- Strong predictor of death
  - 76% died within 48 hours of onset
- Can dominate the experience and memory of friends/relatives at the bedside
Respiratory Congestion-3 Main Factors

- Increased fluid in airway – oropharyngeal, tracheo-bronchial or non-respiratory secretions
- Decreased airway diameter – Increased turbulence or resistance, edema, smooth muscle hypertrophy, intrinsic or extrinsic compression
- Ventilatory rate – tachypnea, altered, rapid breathing patterns
Terminal Secretions

- Saliva production is under parasympathetic control
- Amount of saliva influenced by: vagal tone, hydration, medications (opioids, anticholinergics), illness (auto-immune disease), physical damage (tumor, radiation, surgery)
Terminal Secretions- Respiratory Secretions

- Alteration in normal production and clearance
- Bronchorrhea (abnormal secretion) due to bronchoalveolar ca, asthma, pulmonary mets
- Pulmonary edema
- Tumor products/inflammation
Terminal Secretions – non-respiratory

- Aspiration
- Tracheo-esophageal fistula
- Upper airway tumor products/blood
Respiratory Secretions
- Type 1

- Predominantly salivary secretions, swallowing reflexes inhibited
- Largely unpredictable
- Anticholinergics – glycopyrrolate, atropine, scopolamine likely to be effective
  - Caution with scopolamine – crosses blood brain barrier can cause restlessness, hallucinations, delirium
Respiratory Secretions – Type 2

- Predominantly bronchial, accumulating over several days, pt. too weak to cough
- More likely the longer the interval between poor cough and death
- Anticholinergics less likely to be effective than in Type 1
Terminal Secretions

- If primarily type 1 – glycopyrrolate, scopolamine, atropine, hyoscyamine, positioning
- If primarily type 2 – suctioning may be helpful, positioning, diuretics if CHF is likely
- Stop IV/SQ fluids
- Educate the family and give support
Summary

• The hospice emergencies we have discussed can be quite upsetting for families and other caregivers.
• Be alert to potential emergencies and have medications and a plan in place.
• Patient and family education and support are very important in dealing with emergencies.
General References

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Bleeding

Seizures

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