CRITICAL CARE:

…a physician's perspective

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Outline

- Summary from CPT® 2011
- Case presentation
- Discuss disorders and clinical scenarios
- Discuss treatments

Coding for Critical Care Time

- Imminent or life threatening deterioration
- Basic disorders:
  - -ARDS
  - -respiratory failure
  - -shock
  - -sepsis
- Document time
- What are “carve outs”

CPT® 2011 definition

- …“direct delivery by a physician(s) of medical care for a critically ill or critically injured patient.”
- Critical illness/injury acutely impairs one or more vital organ systems
- High probability of imminent/life threatening deterioration in condition
- Highly complex decision making

Examples of critical organs

- Cardiac
- Respiratory
- Renal
- Central nervous system
- Circulatory system
- Hepatic
- Metabolic
- Bone marrow
- Integument (skin)

“Carve Outs”

- Interpreting cardiac output measurements
- Chest x-rays
- Pulse oximetry
- Blood gas interpretation
- Gastric intubation
- Temporary pacemaker
- Ventilatory management
- Central lines
- Arterial lines
- CPR

Time elements in coding

- Suggest report total and actual time
- DOES NOT have to be continuous
- Must devote all of the time to that patient in the reported time
- All the time does not have to be at the bedside (must be unit/floor)

  -reviewing x-rays/tests/discussing case/documenting care
- 30 minutes minimum

Location

- Location
- Location
- Location
- Well not really-can be critically ill out of a critical care unit…may not be critical in one

Family meetings

- This can count as critical care time
- Must be discussing only that patient
- Four elements (document this!)
  - -patient cannot participate
  - -strong need to guide care
  - -discussion with family needed
  - -document in records

Case presentation

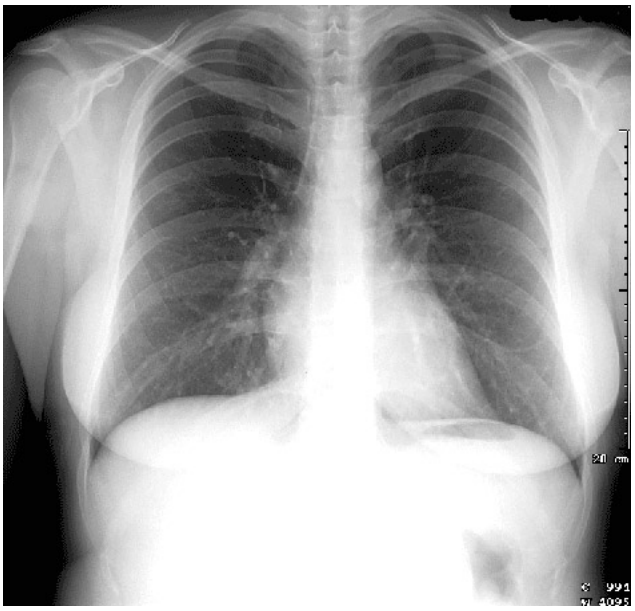
- L.B. 82 year old female, resides in an ECF
- Sent by the staff to the Emergency Department due to change in mental status
- They report she “hasn’t been herself”
- More sleepy, restless and had a fever of 101 degrees
- Past history of pneumonia, hypertension, and dementia

ED assessment

- Vitals: temp was 100 degrees, BP 85/60, HR 110/min, RR 14/min
- Skin was cool, some mottled areas
- Heart exam: tachycardia, no murmurs
- Lungs: a few crackles
- Abdomen: reduced bowel sounds, nontender
- Ext: no edema

ED lab

- CBC: WBC's 14,400, 10% bands
  Hb 9.7
  platelets 120,000
- BUN/Creatinine: 38/1.9
- UA: lots of WBC's, Gram's stain shows gram negative rods (culture pending)
- Blood cultures done-pending
- CXR: "no acute disease, correlate clinically"



Initial plans

- Admitted to the ICU
- “Working diagnosis” is presumed urosepsis (hospital coders don’t like this!), mild hypotension due to dehydration, early sepsis
- Treatment: IV fluids, empiric antibiotics
- BP improved, urine output improving, stable after seen by admitting physician

SIRS/Sepsis definitions

- Systemic inflammatory response syndrome (SIRS)
- Sepsis
- Severe sepsis
- Septic shock
- Refractory septic shock

Mortality in SIRS/Sepsis

- SIRS 7%
- Sepsis 16%
- Severe sepsis 20%
- Septic shock 46%
- Refractory septic shock >90%

SIRS

- Two or more of the following:
- Temp over 101.3 or under 95 degrees F
- Heart rate over 90 beats/min
- Respiratory rate over 20/mim or PaCO2 under 32 mm Hg
- WBC's over 12,000, under 4,000 or over 10% bands (immature) forms

Sepsis

- SIRS in response to documented infection:

  -culture or Gram's stain of blood, sputum, urine or other normally sterile body fluid

  -focus of infection identified by inspection: ruptured bowel, wound with purulent drainage

Severe sepsis

- Sepsis and at least one of the following signs:
  - -areas of mottled skin
  - -capillary refill over 3 seconds
  - -urinary output <0.5 ml/kg for 1 hour
  - -lactate over 2 mmol/L
  - -abrupt change in mental status
  - -platelet count < 100,000
  - -disseminated intravascular coagulation (DIC)
  - -Acute lung injury/ARDS
  - -cardiac dysfunction

Septic shock

- Severe sepsis and one of the following:
  - -systemic mean BP <60 mm Hg (80 mm if previous hypertension) after adequate fluid resuscitation
  - -need for “pressors” dopamine/norepinephrine/epinephrine

Refractory septic shock

- Need for dopamine over 15 mcg/kg/min or
- Norepinephrine/epinephrine over 0.25 mcg/kg/min
- Above to maintain mean BP > 60 mm Hg (80 if previous hypertension)

Multiple organ failure

- Multiple Organ Dysfunction Syndrome (MODS)
- Primary MODS: result of a well defined insult, occurs early and the dysfunction is due to the insult itself (ARDS from aspiration)
- Secondary: organ failure not in direct response to the insult but as a host response to the insult (ARDS from pancreatitis)
- MODS is the severe end of the SIRS/Sepsis spectrum

“Pressors”

- IV medications to maintain BP-usually used in sepsis type settings
- No clear guidelines on which is “best”
- Dopamine (Intropin)
- Epinephrine (Adrenalin)
- Norepinephrine (Levophed)
- Phenylephrine (Neosynephrine)
- Vasopressin (Pitressin)

L.B. 1st day

- SIRS: 2 (HR and WBC’s)
- Sepsis: Gram’s stain of urine (+)
- Severe sepsis: mottled skin
- Septic shock? getting fluids, BP OK so far
- DX: urosepsis (sepsis-UTI as cause)

Coding

- E&M:
  - Initial hospital care 99223
- Dx:
  - “Urosepsis” Doctor talk
  - 599.0 UTI site not specified
  - Code infection first
  - 995.92 severe sepsis
  - SIRS due to infectious process with acute organ dysfunction

L.B. 1st day

- Called by the ICU nurse after several hours
- Patient has some new problems:

  -blood pressure in the 50’s

  -no urine output

  -very confused, combative

  -skin now very mottled, breathing rate in the 30’s, HR 130/min

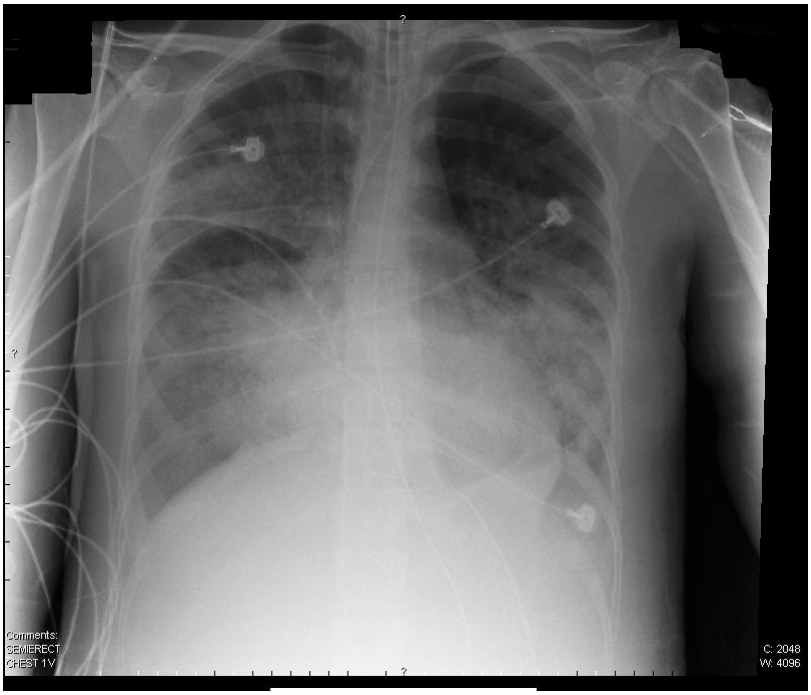
  -oxygen saturation dropping into the 80% range

L.B. 1st day

- Lab was ordered, chest x-ray
- Increase fluids
- Increase oxygen
- Go in to see patient!

L.B. 1st day

- Lab: WBC's now 23,100
  BUN 58/creatinine 2.3
  lactate 4.5
- Arterial blood gas on oxygen 0.60 (60%)
  pH 7.25
  PaO2 58
  PaCO2 34
  PaO2/FiO2 ratio: 97
- Chest x-ray shows bilateral "fluffy" infiltrates
- Radiology says to "correlate clinically"



L.B. 1st day

- Urine output now almost zero despite fluids
- BP still very low
- Patient breathing very hard, looks uncomfortable
- Patient unable to answer questions, flailing around, trying to unhook monitors and pull IVs

L.B. 1st day

- Need to discuss with family RE: Code status, use of pressors, whether to put on ventilator
- After discussion they want “everything done”

L.B. 1st day

- New clinical issues:

  -she is in shock

  -she is in respiratory failure

  -“brain failure” (delirium or encephalopathy)

  -renal failure

Shock syndromes

- Hypovolemic
  -blood loss
- Cardiogenic
  -congestive heart failure
- Distributive
  -septic shock

Hypovolemic shock

- Bleeding from hemorrhage
- Trauma
- Ruptured aorta
- GI bleed: upper or lower
- Fluid loss: vomiting
  diarrhea
  dehydration

Cardiogenic shock

- Myocardial infarction
- Cardiomyopathy
- Arrhythmias: ventricular tachycardia/heart block
- Valvular disease
- Pulmonary embolism

Distributive shock

- Septic shock
- Toxic shock syndrome
- Anaphylaxis
- Neurogenic shock (brain/spinal cord injury)
- Myxedema coma (hypothyroid)
- Adrenal failure (Addisonian crisis)

Acute Respiratory Distress Syndrome (ARDS) definition

- Acute Lung Injury (ALI):
  - -acute onset
  - -bilateral infiltrates consistent with pulmonary edema
  - -PaO2/FiO2 ratio: 201-300 mm Hg
  - -PCWP < 18 mm Hg, no evidence for elevated left atrial pressure (heart normal)

ARDS definition

- All of the previous
- PaO2/FiO2 ratio: < 200 mm Hg
- “Worse” ALI
- Need cause!

ARDS Causes

- Sepsis
- Aspiration
- Pneumonia
- Severe trauma
- Burns
- Multiple transfusions
- Pancreatitis
- Pulmonary contusion
- Multiple fractures
- Drug overdose

ARDS Treatment

- Treat cause
- Supportive care
- Mechanical ventilation:
  - -low tidal volumes
  - -avoid complications of ventilator
- Fluids on low end
- NO REAL TREATMENT!

ARDS-like syndromes

- Drug induced non-cardiogenic pulmonary edema
- Venous air embolism
- Amniotic fluid embolism
- Fat emboli syndrome
- Neurogenic pulmonary edema
- Post upper airway obstruction pulmonary edema

Acute renal failure (Acute Kidney Injury or AKI)

- Acute tubular necrosis (45%)
- Prerenal (21%)
- Acute on chronic renal failure (13%)
- Urinary tract obstruction (10%)
- Glomerulonephritis (4%)
- Acute interstitial nephritis (2%)
- Atheroemboli (1%)

Acute tubular necrosis (ATN)

- Due to ischemia of the kidney, usually due to low BP
- Predisposed: chronic kidney disease, atherosclerosis, DM, advanced cancer, poor nutrition
- Surgery: low BP, volume depletion, fluid losses
  - -abdominal aortic aneurysm
  - -cardiac surgery
  - -surgery to correct obstructive jaundice

ATN-other causes

- Sepsis-low BP, toxins, inflammatory mediators
- Acute pancreatitis
- Liver failure
- Aminoglycoside antibiotics:
  - -gentamicin
  - -tobramycin

Prerenal kidney failure

- “Before the kidney”
- Volume depletion (vomiting, diarrhea, blood loss)
- Shock
- Burns
- Heart failure
- Cirrhosis
- Nephrotic syndrome

L.B. 1st day-treatment

- Shock:
  - -continue fluids
  - -continue antibiotics
  - -add norepinephrine to maintain BP
  - -place arterial line to monitor BP
  - -place central line to be able to follow CVP, give more fluids and medications
- Meets criteria for Septic Shock and MODS (respiratory failure and renal failure)

L.B. 1st day-treatment

- Renal failure: ATN? Prerenal?
- Continue to treat cause
- Monitor urine output and blood pressure
- If other antibiotics needed avoid renal toxic drugs

L.B. 1st day-treatment

- Respiratory failure:
  -meets criteria for ARDS
- Place on mechanical ventilator
- Sedation (this will treat the delirium)
- Monitor blood gases (arterial line)

L.B. 1st day Summary

- DX: now is septic shock/MODS/ARDS/renal failure/delirium
- By the end of the visit her BP is now “stable” at 90 mm Hg on norepinephrine/fluids
- Oxygen stable on ventilator
- Still no urine output
- Update family on her diagnosis, treatment, and prognosis

L.B. 1st day-documentation

- Time elements: how long, clock time
- Mention the arterial line, central line-that the time placing these WAS NOT included in the time presented but used the data and spent time interpreting information
- Mention the illnesses, severity, prognosis, family discussion, what needed “tweaking” such as the ventilator settings, medications, pressors
- Dictate if able AND/OR note in chart (make copy for your billers)

Coding

- E&M:
  - Critical care: 99291, 99292 (104 minutes)
- DX:
  - Urinary tract infection 599.0
  - Severe sepsis 995.92
    - Sepsis with MODS
  - Septic shock 785.52
  - ARDS 518.5
    - 518.82 ARDS associated with other condition?
  - Acute renal failure (acute tubular necrosis) 584.5
  - Metabolic encephalopathy (septic) 348.31
  - (Was delirium 293.0, above better fit)
  - Ask your Doc!

History of Critical Care

- 1940's polio epidemic led to many respiratory areas where patients were grouped with the Iron Lungs
- 1950's: mechanical ventilators developed-grouped into Respiratory ICU's
- 1958: Johns Hopkins had first multi-disciplinary ICU
- 1960's: most hospitals had at least one ICU
- 1970: Society of Critical Care Medicine founded (28 physicians)
- 1986: first Board in Critical Care
- Now: over 5,000 ICU's
- Future: telemedicine? Remote real time interactive CC monitoring?

L.B. 2nd day

- Rounds early the next day fairly uneventful
- Blood cultures and urine have grown E. coli
- Stable (but very ill) on the ventilator in ICU, pressors, antibiotics and fluids
- Reviewed lab, x-rays, notes
- Updated family on condition and prognosis
- Is this Critical Care Time? E & M code?

L.B. 2nd day

- Called by the nurse late afternoon:

Blood pressure is very low (50's), having to turn up the medicines to keep her blood pressure up (over 1 mcg/kg/min of norepinephrine)

Oxygen status is worse, on 100% now and still has low oxygen levels

Still no urine output

New problem: liver tests are now very abnormal "shock liver"

L.B. 2nd day-Summary

- Respiratory failure
- Renal failure
- Central nervous system failure
- Circulatory failure
- Hepatic failure
- Refractory septic shock
- MODS

L.B. 2nd day

- Go to bedside
- Exam patient
- Review lab, new chest x-ray
- Discuss case with the other consultants and residents, nurses, respiratory therapists
- Review notes in chart

L.B. 2nd day

Need family discussion!

- Patient cannot participate
- Need guidance regarding further care
- Need to discuss code status
- Explain prognosis
- Review other options regarding other care OR stopping care (end of life discussion)

L.B. 2nd day-final

- After meeting family decides on course of “comfort care”
- All lab, x-rays, medicines stopped except morphine as needed for pain, discomfort
- Ventilator removed
- Patient expires in 10 minutes with family present

Documenting the visit

- Dictate? Discharge code? Critical care?
- The patient must be critically ill: critical organs-imminent/life threatening deterioration
- Discuss the “failures”
- Discuss the need for complex decision making: diagnosis/treating/adjusting medications/ventilator

Documenting the visit (2)

- Discuss the family meeting if it occurred
- If “carve out” procedures done mention they ARE NOT included in the time spent
- Document the time spent: clock and total
- Have this in the office available if needed as well as on the chart

Organizations

- American Thoracic Society
  -thoracic.org
- American College of Chest Physicians
  -chestnet.org
- Society of Critical Care Medicine
  -sccm.org

Other Web Sites

- Leapfroggroup.org
  -Patient and hospital safety, ICU staffing
- ARDSNet.org
  -New research on management of ARDS
- Surviving Sepsis Campaign Guidelines
  -Crit Care Med 2004, 32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