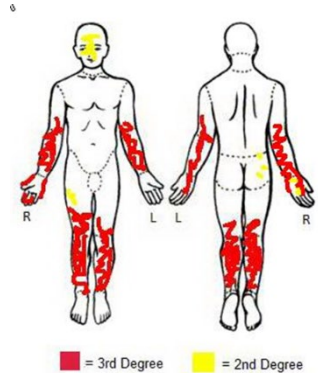


## Part 2 – Inpatient Management of Burns

Ron Herman, Ph.D.

### Case Study #1

DB is a 27-year-old male who is admitted with a 32% TBSA burn after falling into a campfire. He has no past medical history and no known allergies. He is 65 inches tall and weighs 75 kg. On hospital day #2, DB is scheduled to have a dressing change. What would be an appropriate medication to give to DB prior to this procedure?



- Morphine immediate release 30 mg 1 hour prior
- Morphine extended release 30 mg 1 hour prior
- Acetaminophen 650 mg 1 hour prior
- Methadone 5 mg 1 hour prior

- Extended release morphine is absorbed so slowly, that it would not benefit any intense, acute pain associated with the procedure. Methadone has a slow onset of action, but also a long duration of action, so we do not want to use it for a short procedure. It would be appropriate to use both the acetaminophen and the immediate release morphine.

On hospital day #4, DB has increased redness, warmth, and tenderness that has developed on his right thigh. He was febrile overnight and his white blood cells have increased to 15,000 cfu/ml. What is your diagnosis?

- The redness and warmth of the margin around the wound, the fever and the elevated white cell count all point to cellulitis.

What organism(s) is most likely causing cellulitis on DB right now?

- Streptococcus sp.
  - Staphylococcus sp.
  - E. coli
  - Aspergillus sp.
- Early wound infections are almost always Staph and Strep, the most common skin bacteria.
  - E. coli and fungal infections are usually only seen in later stages.

### Case Study #2

21 Y.O. WM was asleep at home when the house caught fire. How should the patient be fluid resuscitated?

The paramedic examines the victim, estimates his weight at 80 Kg and reports that both legs are burned, and the right side of his face. What fluid and what rate do you recommend over the radio?

- First, estimate the extent of injury. Using the Rule of Nines, both legs are burned, so that is 9% for each leg below the knee and 9% for each upper leg. That is 36%

## PHAR:8251 Integrated Pharmacotherapy: Dermatology

BSAB. Then it says the right side of the face. The entire head is 9%, so if you say 4%, that gives you a nice round 40% estimate.

- The patient is 21, with a weight over 30 Kg, so we are going to use the adult resuscitation formula, the Parkland formula.
- Give half of the total volume in the first 8 hours, and then give the other half in the next 16 hours.

### ✿ Using the Rule of Nines:

- \* BSAB is approximately 40%

### ✿ Parkland Formula: $(40\%)(80\text{ Kg})(4\text{ ml/Kg}) = 12,800\text{ ml}$

- \* Give 6400 ml over 8 hours (800 ml/hr)
- \* Give 6400 ml over 16 hours (400 ml/hr)
- \* Use Lactated Ringers

### Case Study #3

Once the patient is at the Burn Treatment Center and fluid resuscitation is complete, he underwent skin grafting. During his recovery period he needs pain management. What drugs and what dose what you use for this patient?

- We are in the recovery phase, so we probably do not need IV medications.
- Let's start out with a typical adult dose of 30 mg Q12H of slow release morphine to give us continuous coverage. We will need to monitor the patient's response carefully. This is a 21 Y.O. male and we know that burn patients are hypermetabolic, so he may be clearing the morphine faster than normal. We may need to go higher on the dose, or give the slow release Q8H to have adequate pain control throughout the dosing interval.
- The patient will have a daily tub to cleanse the wounds and dressing will be changed at this time. For these painful events, additional fast-acting morphine may be needed. The dose is 0.3 mg/Kg orally of immediate release morphine. For our 80 Kg patient that would be 24 mg. Thinking about the dosage forms that it comes, we would choose 25 mg of MSIR.
- For those painful events we may also need conscious sedation. We would choose Midazolam PO to be given 30 minutes prior to the painful event. The dose would be 0.3 – 0.5 mg/Kg, so for our patient we could give 25-40 mg.
- Lastly, we should make sure that there is an order for prn acetaminophen that can be used also for break-through pain and prior to the painful events.

### ✿ For background pain:

- \* MS Contin 30 mg Q12H

### ✿ For procedure pain & breakthrough pain:

- \* MSIR 25 mg Q2-4H prn
- \* Midazolam PO 25-40 mg prn
- \* Acetaminophen 650 mg Q4H prn