Nursing Care for Patient with Burn injury

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Skin

The skin is the body's largest organ. It covers the entire body. It serves as a protective shield against heat, light, injury, and infection.
Burn

Cutaneous injury caused by heat, electricity, chemicals, friction, or radiation.
Causes of the Burn

1- Chemical Burns

• Can occur whenever a toxic substance contacts the body
• Generally caused by strong acids or strong alkalis
• The eyes are particularly vulnerable.
• The severity of the burn is directly related to the:
  – Type of chemical
  – Concentration of the chemical
  – Duration of the exposure
Signs and symptoms of chemical burns include the following:

• Redness, irritation, or burning at the site of contact
• Pain or numbness at the site of contact
• Formation of blisters or black dead skin at the contact site
• Vision changes if the chemical gets into eyes
• Cough or shortness of breath
Management

– Remove any chemical from the patient.
– Always brush dry chemicals off the skin and clothing before flushing with water.
– Remove the patient’s clothing.
– For liquid chemicals, immediately begin to flush the burned area with lots of water.
– Continue flooding the area for 15 to 20 minutes after the patient says the burning pain has stopped.
– If the patient’s eye has been burned, hold the eyelid open while flooding the eye.
Electrical Burn

- May be the result of contact with high- or low-voltage electricity
- For electricity to flow, there must be a complete circuit between the source and the ground.
- The human body is a good conductor.
- The type of electric current, voltage have effects on the seriousness of the burn
A burn injury appears where the electricity enters and exits the body.

- Two dangers:
  - There may be a large amount of deep tissue injury.
  - The patient may go into cardiac or respiratory arrest from the electric shock.
Management

- If indicated, begin CPR on the patient and apply an AED.
- Be prepared to defibrillate if necessary.
- Give supplemental oxygen and monitor.
- Treat soft-tissue injuries with dry, sterile dressings.
Thermal Burns

Caused by heat

• Most commonly, they are caused by scalds or an open flame.
  – A flame burn is very often a deep burn.
  – Hot liquids produce scald injuries.
• Coming in contact with hot objects produces a contact burn.
Management

– Stop the burning source, cool the burned area, and remove all jewelry.

– Increased exposure time will increase damage to the patient.

– All patients should have a dry dressing applied to:
  • Maintain body temperature
  • Prevent infection
  • Provide comfort
Radiation

• Potential threats include:
  – Incidents related to the use and transportation of radioactive isotopes
  – Intentionally released radioactivity in terrorist attacks
Management

- Irrigate open wounds.
- Notify the emergency department.
- Identify the radioactive source and the length of the patient’s exposure to it.
- Transfer the victim to hospital.
CLASSIFICATION OF BURNS

1. Depending on the percentage of burns

A- Mild Burn injury

• First degree burns <15% in adults and <10% in children
• Second degree <2%
• Can be treated on outpatient department
B- Moderate Burn injury

- Second degree burn of 15-25% burns
- Third degree burn between 2-10% burns
- Burns which are not involving eyes, ears, Face, hand, feet and perineum
C- Sever Burn injury

- Second degree burns more than 25% in adults and more than 20% in children
- All third degree burns more than 10%
- Burns with fracture
- Burns involving eyes, ears, feet, hands and perineum
2- Classification depending on thickness of skin

- First degree
- Second degree
- Third degree
- Fourth degree
First degree

- Epidermis affected only
- Epidermis looks red and painful
- Red or pink, dry, painful, blanches to touch
- Epidermis is intact
- No blisters formation
- Heals rapidly In 5-7 days by epithelialization
  Without scarring
Second degree

- Entire epidermis & portion of dermis
- Homogenous pink
- Painful
- Blanches
- Some times does not scar, may pigment differently
- Blister formation
- Heals in 14-21 days by epithelialization with scaring
## Two types of 2\textsuperscript{nd} degree burn

<table>
<thead>
<tr>
<th>Superficial partial thickness</th>
<th>Deep partial thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Blanches</td>
<td>• Does not blanch</td>
</tr>
<tr>
<td>• Some times does not scar, may pigment differently</td>
<td>• Usually scars</td>
</tr>
<tr>
<td>• Heals in 14-21 days by epithelialization With scarring</td>
<td>• Heals &gt; 3 weeks</td>
</tr>
<tr>
<td>• Painful</td>
<td>• Not painful Need to excise and graft</td>
</tr>
</tbody>
</table>
3rd degree burn

- May go into fat or deeper
- Red, white, brown, black
- Painless or numb
- Always excise and graft
4\textsuperscript{th} degree burns

It involves underlying Tissues Muscles bones
Patient Assessment of Burns

• When you are assessing a burn, it is important for you to classify the victim’s burns.

• Classification involves determining the:
  – Source of the burn
  – Depth of the burn
  – Severity
• **Patient assessment steps**
  – Scene size-up
  – Primary assessment
  – History taking
  – Secondary assessment
  – Reassessment
Rule of nine

• The size of a burn can be quickly estimated by using the "rule of nines." This method divides the body's surface area into percentages.
• Burn evaluations are used to examine moderate to severe burn injuries. During a burn evaluation, the health care provider will carefully look at the wound. He or she will also figure out an estimated percentage of total body surface area (TBSA) that has been burned. The provider use a method known as the "rule of nines" to get this estimate.
The rule of nines divides the body into sections of 9% or 18% (2 times 9). The sections are divided as follows:

- **Head and neck**: 9% of TBSA
- **Each arm**: 9% TBSA
- **Each leg**: 18% TBSA
- **Anterior trunk (front of the body)**: 18% TBSA
- **Posterior trunk (back of the body)**: 18% TBSA
- **Genital area**: 1% TBSA
Emergency Medical Care for Burns

- Stop the burning process.
- Prevent additional injury.
- Follow the steps in
First aid

• Prevent infection
• Reassure the burnt person
• Transport of the casualty to the hospital. Minimize the effects of fluid loss from the burnt tissue
• Remove the cause of the burn from the casualty. Rescue the casualty carefully.
• Burns should be treated immediately by showering in cold water or by immersion in water which is cooler than body temperature
• Make sure you and the person who’s burned are safe and out of harm’s way. Move them away from the source of the burn. If it’s an electrical burn, turn off the power source before touching them.

• Check to see if they’re breathing. If needed, start rescue breathing if you’ve been trained.
• Remove restrictive items from their body, such as belts and jewelry in or near the burned areas. Burned areas typically swell quickly.

• Cover the burned area. Use a clean cloth or bandage that’s moistened with cool, clean water.
Separate fingers and toes. If hands and feet are burned, separate the fingers and toes with dry and sterile, nonadhesive bandages.

Remove clothing from burned areas, but don’t try to remove clothing that’s stuck to the skin.

Avoid immersing the person or burned body parts in water. Hypothermia (severe loss of body heat) can occur if you immerse large, severe burns in water.
• Raise the burned area. If possible, elevate the burned area above their heart.

• Watch for shock. Signs and symptoms of shock include shallow breathing, pale complexion, and fainting.
Emergency Medical Care for Burns

- Stop the burning process.
- Prevent additional injury.
- Follow the steps in...
1. Cool the area immediately which has been burnt or scalded by putting plenty of cold water or by putting clean cloth soaked in cold water. The cooling of the part prevents further damage by removing residual heat from the affected area.

2. Remove the clothing of the patient by cutting it around.

3. Keep the patient in lie down position.

4. Reassure the patient and do not disturb the blisters.

5. Cover the burnt area by large dressings or by a clean bed sheet.
6. No antiseptic, lotion, oil, flour, butter, soda or ink should be applied on the burn. Rather burn area should not be touched unless it is necessary.

7. Remove immediately from the body things like rings, bangles, belt & boots etc. When limbs swell due to edema, such articles may cause gangrene.

8. If the patient is conscious, give sips of water to him.

9. Take mother's assistance in managing a small child.
Things not to do

• Don’t contaminate the burn with potential germs by breathing or coughing on it.
• Don’t apply any medical or home remedy, including ointment, butter, ice, spray, or cream.
• Don’t give the burned person anything to ingest.
• Don’t put a pillow under their head if you think they have an airway burn.
Causes of death in burns

a. Hypovolaemia and shock
b. Renal failure
c. Pulmonary oedema and ARDS
d. Septicaemia
e. Multiorgan failure
• **Dressings and bandages have three functions:**
  – To control bleeding
  – To protect the wound from further damage
  – To prevent further contamination and infection
Burn complications

- Infection
- Dehydration
- Low body temperature
- Contractures
- Muscle and tissue damage
- Emotional problems
Preventions

• Wear appropriate chemical-resistant gloves and eye protection
• Never attempt to remove someone from an electrical source unless you are specially trained to do so.
• Keep children out of the kitchen while cooking.
• Turn pot handles toward the back of the stove.
• Place a fire extinguisher in or near the kitchen.
• Test smoke detectors once a month.
• Replace smoke detectors every 10 years.
• Keep water heater temperature under 120 degrees Fahrenheit.
• Measure bath water temperature before use.
• Lock up matches and lighters.
• Install electrical outlet covers.
• Check and discard electrical cords with exposed wires.
• Keep chemicals out of reach, and wear gloves during chemical use.
• Wear sunscreen every day, and avoid peak sunlight.
• Ensure all smoking products are stubbed out completely.
• Clean out dryer lint traps regularly.
Thanks for your attention