Heat and Cold Application
Learning Objective

• Define heat and cold application
• List the indication of using heat and cold application.
• Enumerate the contraindication for heat and cold application.
• Explain the local effects of heat
• Discuss the disadvantage of heat application
• Explain the different forms of heat application
• Local effect of cold
• Systematic effect of heat and cold application
• Contraindications to the use of heat or cold
• Temperature for hot and cold applications
• Different methods of applying heat and cold
Heat and Cold Application

Heat and cold are applied to the body for local and systemic effects.
Purposes of heat applications

- Promote healing & comfort
- Reduce tissue swelling

Results of heat applications

A | B | C
---|---|---
Normal | Dilated | Constricted
Local Effects of Heat

- Vasodilatation and increases blood flow to the affected area
- Bringing (oxygen, nutrients, antibodies, and leukocytes)
- Promote soft tissue healing
- Used for client with (joint stiffness, low back pain)
- Sedative effect
- Increase inflammation
Relieves pain, relaxes muscles, promotes healing, reduces tissue swelling, decreases joint stiffness

When applied, blood vessels dilate, causing increased blood flow, increasing O2 & nutrition to area and removing excess fluid from tissues

Complications

Burns (pain, excess redness, blisters, pale skin)
Systematic effects of heat

- Heat applied on large body area
- Excessive peripheral vasodilatation
- Drop in blood pressure
- Fainting attack
• Persons at risk

✓ Fair skin
✓ People with problems sensing pain
✓ Persons with metal implants
✓ Very young
✓ Elderly
  o Changes in skin with aging
  o Those with dementia might miss pain
Appling heat and cold

2 forms of application

Moist

Heat

Dry

Cold
MOIST HEAT APPLICATIONS

✓ Water in contact with skin
✓ Water conducts heat
  ✓ Has greater, faster effects
  ✓ Penetrates better
✓ Hot compresses
✓ Hot soaks
✓ Sitz baths
Disadvantage of Heat Application

- Increase capillary permeability
- Extra cellular fluid and substance as plasma to pass through the capillary walls
- Edema
Local effect of cold

- Lowers the temperature of the skin and underlying tissue
- Vasoconstriction
- Decrease capillary permeability
- Slow bacterial growth
- Decrease inflammation
- Local anesthetic effect
Systematic Effects of Cold

Excessive cold applications → Vasoconstrictions → Increase of blood pressure → Prolonged cold → Shivering
Cold Applications

✓ Complications
  o Pain, burns, blisters
  o Cyanosis

✓ Persons at risk
  o Fair skinned
  o Those with mental or sensory impairments
  o High risk for elderly or very young
Contraindications to the use of heat

- The first 24 hours after traumatic injury (heat increases bleeding and swelling).
- Active hemorrhage (heat causes vasodilatation and increase bleeding).
- Non inflammatory edema (heat increases capillary permeability and edema).
- Skin disorder (heat can burn or cause further damage to the skin).
- Localized malignant tumor (heat increases cell growth and accelerate metastases).
Contraindications to the use of cold

- Open wound (cold can increase tissue damage by decreasing blood flow to an open wound).
- Impaired circulation (cold can further impair nourishment of the tissue).
- Allergy and hypersensitive to cold application.
- Some people react by decrease Bp.
- Inflammatory response (swelling, joint pain).
Contraindications to Use Heat and Cold

1- the first 24 hour after traumatic injury.
2- Active hemorrhage.
3- Noninflamatory edema.
4- Localized malignant tumor.
5- Skin disorder.
6- Open wound.
7- Allergy or hypertensive to cold.
Contraindications to Use Heat and Cold

- Neurosensory Impairment
- Immediately after injury or surgery
- Open Wound
- Impaired Circulation
- Impaired Mental Status
<table>
<thead>
<tr>
<th>Description</th>
<th>Temperature</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very cold</td>
<td>Below 15°C</td>
<td>Ice bag</td>
</tr>
<tr>
<td>Cold</td>
<td>15-18°C</td>
<td>Cold packs</td>
</tr>
<tr>
<td>Cool</td>
<td>18 – 27°C</td>
<td>Cold compresses</td>
</tr>
<tr>
<td>Tepid</td>
<td>27 – 37°C</td>
<td>Alcohol sponge bath</td>
</tr>
<tr>
<td>Warm</td>
<td>37 – 40°C</td>
<td>Warm bath</td>
</tr>
<tr>
<td>Hot</td>
<td>40 – 46°C</td>
<td>Hot soak, hot compresses</td>
</tr>
<tr>
<td>Very Hot</td>
<td>Above 46°C</td>
<td>Hot water bag for adult</td>
</tr>
</tbody>
</table>
Methods of Applying heat and cold

• Hot water bag (bottle)
  • More Common source of dry heat
  • In expensive
  • Improper use leads to burning

• Hot and cold packs
  • Commercially prepared hot and cold packs provide heat or cold for a designated time
• **Electrical Pads**
  – Provide constant heat
  – Are light weight
  – Some have water proof covers to placed over a moist dressing

• **Ice Bags,**
  – Filled either with ice chips.

• **Compresses**
  – Can be either warm or cold
  – Are moist gauze dressing applied to a wound
• **Soak**
  – Refers to immersing a body part in a solution
  – Sterile technique is generally indicated for open wound

• **Sitz Bath or hip bath**
  – Used to soak a client’s pelvic area
  – The client’s sit on the chair and immersed in the solution

• **Cooling Sponge Bath**
  – Promoting heat loss through
    – conduction
  – Companied by antipyretic medication
MOIST HEAT APPLICATIONS

- Sitz bath
Nursing Checklist
Heat and Cold Applications

General guidelines to follow when using heat and cold applications include:

1. Obtain a physician’s order that details the site to be treated, the type of therapy, and the frequency and duration of application.
2. Select temperature on the basis of client status and agency policy.
3. Thoroughly explain procedure and expected benefits to client.
4. Assess client’s status before, during, and after treatment is performed to prevent injury.
5. Document effects of therapy.
Thank You