

Sterilization

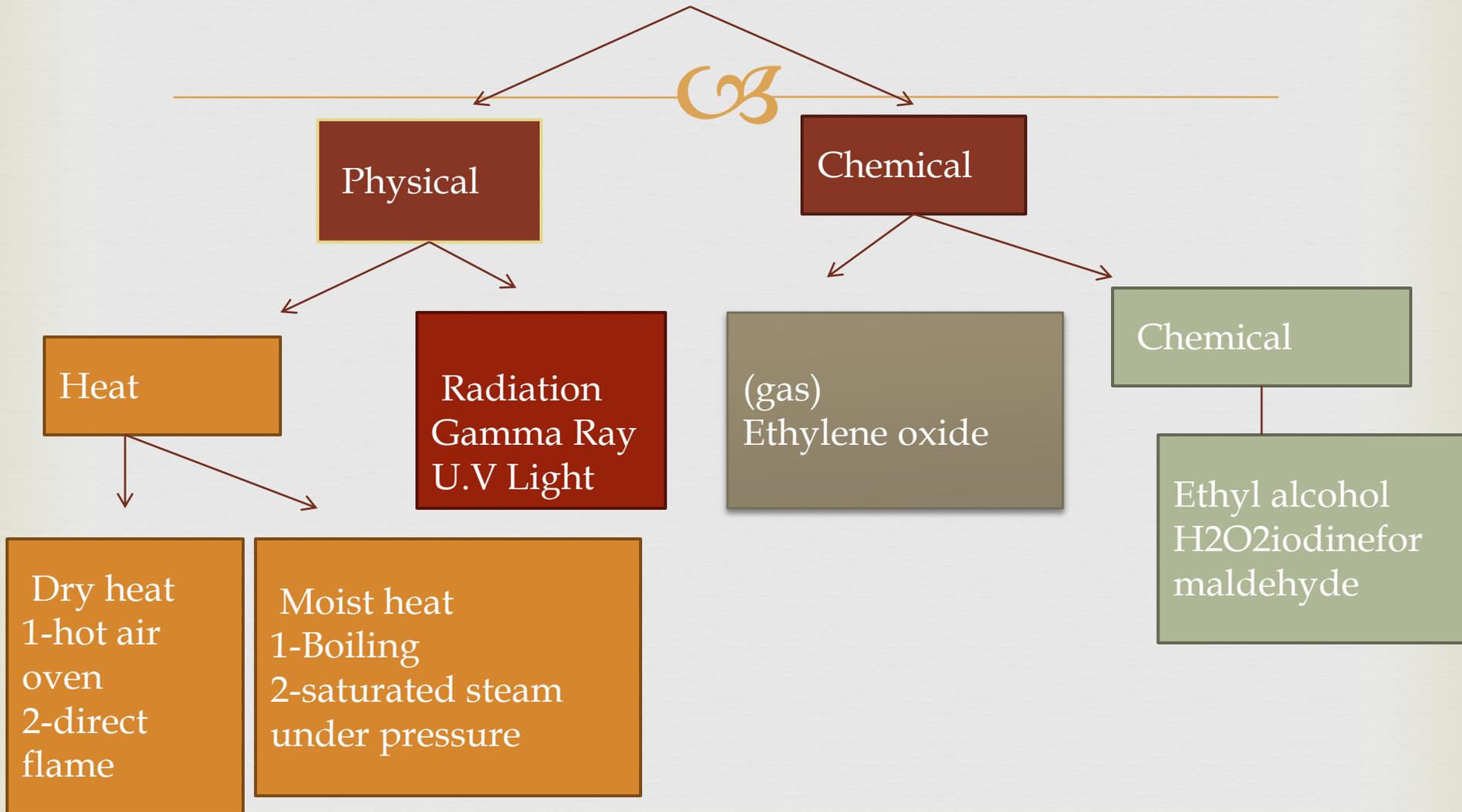


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Sterilization

- ☞ Sterilization: process of complete destruction of all microorganisms (pathogenic & non- pathogenic)

Methods of sterilization



All instruments must be clean before being subjected to sterilization, this entails the removal of all foreign material particular attention is paid to serrations present on the jaw & catch & lock of hemostatic forceps & similar instruments, this should be done by soaking the soiled instruments in water to which has been added some detergent cleaner.

Methods of sterilization



∞ Physical method by

∞ 1- Heat

∞ A- Dry heat: By using hot air oven which is usually used for glassware (flasks, tubes...) or by direct flame used for sterilization of the loop (used in microbiology).

❧ B- Moist Heat

❧ 1- Boiling



Simple, economic, available method used in emergency cases where there is no other way for sterilization; by emerging instruments in water (Boiling water) for 30 minutes.

☞ 2- Saturated steam under pressure

☞ Autoclave

Steam sterilizers typically operate under a balance of steam, pressure, temperature, and time. Ideally, the moisture is completely in the form of steam. The pressure serves merely to allow the process to occur at a higher temperature than would otherwise be obtainable.

Temperature and time requirements are interdependent, although typical temperature may be 121° C (250° F), Pressure 15 bars for 30 minutes, or 132° C (270° F) for 4 minutes. At higher temperatures, less exposure time is required.



Cont.



☞ All the surgical pack sterile by auto clave and can be still sterile for six months but should be re -sterile every three weeks and should be away from dust. To ensure the efficiency of sterilization we used indicators like labels and putted inside or outside the dram

Radiation



✧ This method used to sterilize the surgical tools (gloves, plastic, rubber, syringe) that cannot be sterilize by heat, so these sterilize by ionizing radiation (gamma ray, X-ray and UV).

Chemical sterilization



- ❧ **Ethylene oxide:** - it is gas used to sterilized surgical material, this method is expensive, need special apparatus and toxic to tissue of human.
- ❧ **Cold sterilization:** - means using chemicals to sterilize instrument (disinfectant), in this type soak the instrument in container filled with chemical.

Cont.



☞ The chemical solution that used for sterilization (alcohol 70%, iodine, hydrogen peroxide and formaldehyde).

Disadvantage of chemical sterilization



- ❧ 1- Have certain concentration for effective sterilization e.g. (alcohol 70%)
- ❧ 2- Most of chemical irritant and toxic to living tissue
- ❧ 3- Most of chemical bacteriostatic not bactericidal
- ❧ 4- Not all instrument sterilized by this method
- ❧ 5- After sterilized should rinse the instrument with normal saline or distil water to remove the effect of chemical
- ❧ 6- Need long time e.g. sterilization by 70% alcohol we should leave the instrument in solution for 18- 24 hr.

When you do not succeed in taking giant steps on the road to your goal, be satisfied with little steps, and wait patiently till the time that you are able to run, or better still, to fly. Be satisfied to be a little bee in the hive who will soon become a big bee capable of making honey...



Thank you ...

Any Question????