Electrotherapy

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Fsc Technician 1

Infrared rays

- Electro magnetic waves
- Wave length 4,000,000 and 7,700 A
- Given off from any hot body
- Greater the heating, shorter being the wavelength of the rays emitted

Infrared Generators

- Various types of generators are employed in the physiotherapy department, two main types are
- NON LUMINOUS GENERATOR
- LUNIMOUS GENERATOR

Non Luminous Generator

- The non luminous generator produces the infra red rays with wavelength between 150,000A and 7,700A
- The max emission of rays is in the region of 40,000A
- There are further 3 types of non luminous generator

1st type of Non Luminous Generator

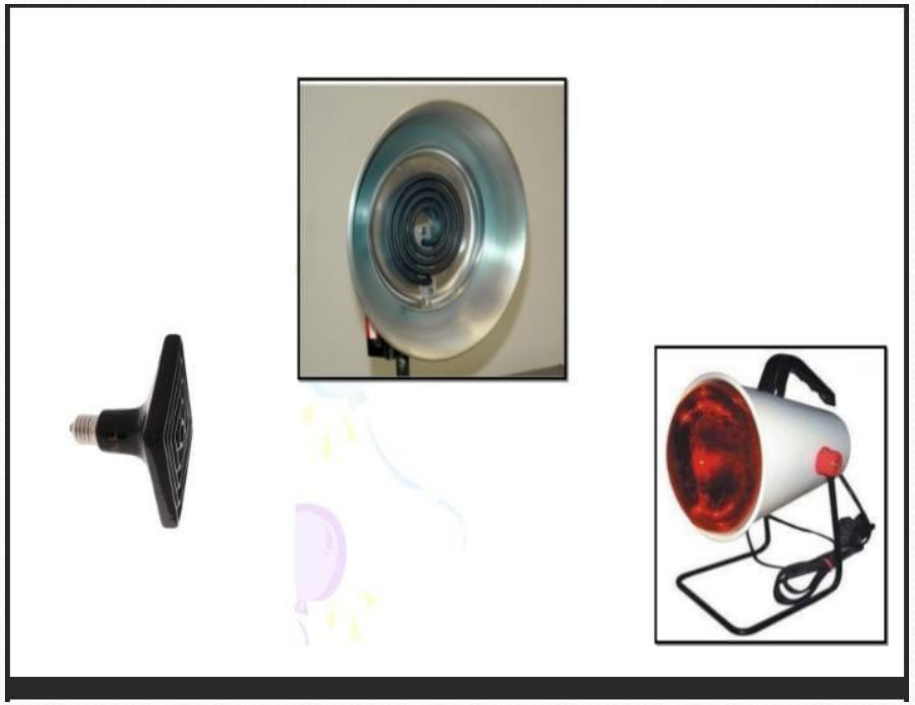
- It consist of a Coil of wire, wound on cylinder of some insulation material like, fireclay or porcelain
- Electric current is passed through the wire and produced heat
- Infrared rays are emitted from the wire and fireclay, while fireclay is heated by conduction
- Some visible rays are also emitted(like red glow)
- So it is not perfectly the non luminous

1St type of Non Luminous Generator

2nd type of Non Luminous Generator

- Coil is embed in the fireclay or placed behind the plate of this material
- Rays are purely emitted by the plate
- Plate is painted black, so very few visible rays are produced
- Both type of elements are connected to a circuit and placed to the focal point of parabolic or gently curved reflector
- the reflector is mounted on a stand and its position is adjustable as required

2nd type of Non Luminous Generator



3rd type of Non Luminous Generator

- Consist of steel tube of approximately 8 mm in diameter
- Within which a spiral coil embedded on electrical insulator but heat conductor material
- Current passed through wire, heat produced conducted through insulator to steel tube and infra red are emitted
- Tube is bend in 2 or 3 large turns
- And mounted on a reflector

3rd type of Non Luminous Generator

Time of Heating

- All non luminous generators take some type to heat up
- 5 min for 1st type
- 10 to 15 min for 2nd n 3rd type
- so lamps must be switch on an appropriate time before they are requird

Care

- Construction must be such that reflectors and other apparatus must not be unduly hot during use
- **ENERGY CONSUMPTION**
- Small elements consume 500 watts(light circuits can be use)
- Lager consumes 750 – 1000 watts(heavy cicuits)

Luminous Generator

- Rays produced by one or more incandescent lamps
- Consist of a wire filament enclosed in a glass bulb, which may be evacuated or contain an inert gas at low pressure
- Filament is made up of tungsten wire.

Wattage

- 60 – 1000 watts
- Inadvisable to use bulbs of high wattage as they can explode
- For using bulb of 300 watts a mesh wire gauze is placed in front of reflector
- 150 or less watts attached by spring sockets while larger ones by screw cap connections

Spectrum

- Produces heat, infrared, visible and a few ultra violet rays
- Specturm is from 40,000 to 3500A
- The greatest part of emission is 10,000 A

Reflectors

- A single bulb may be mounted on a parabolic reflector.
- Indication
- Treatment of small, particular area, like hand, foot, knee joint
- Tunnel bath
- Number of bulb are mounted in a semicircular metal frame work
- 60 watt bulb are connected in parallel
- Switches are available so that some or all the bulbs may be included in the circuit
- Tunnels are made in various sizes to treat different parts of body

Accessories

- Localizer
- Specific areas
- Filters
- Red glass filters, absorbs visible and UV rays
- Resistance
- Connected in series, output can be adjusted