



**MEDICAL IONIZATION
IONTOPHORESIS**

MEDICAL IONIZATION

**“MEDICAL APPLICATION OF IONTOPHORESIS”
“APPLICATION OF IONTOPHORESIS TO TREAT MADICAL
CONDITIONS”**

**Examples: wound healing, inflammatory conditions<
infections etc.**

IONTOPHORESIS

“ IONTOPHORESIS IS A THERAPEUTIC TECHNIQUE WHICH INVOLVES THE INTRODUCTION OF IONS INTO THE BODY TISSUES THROUGH PATIENTS SKIN (BY USING CURRENTS)”



The basic principal is to place the ion under an electrode with the same charge, i.e.

- **Negative ion placed under cathode**
- **Positive ions placed under anode**

This technique is also known as “technique of ion transfer” into the body tissues by using electrical current as a driving force.

The electrode under which ions are placed is therefore called ACTIVE ELECTRODE.

Type of current used_____ CDC

Reason for using CDC_____ ????

ADVANTAGES

- PAINLESS
- STERILE
- NONINVASIVE

DISADVANTAGES

- **CHEMICAL BURN**
 - **Due to direct current itself.**
- **Not because of the ions being used.**

QUANTITY OF IONS TRANSFERRED INTO THE TISSUES

- Depends upon
1. INTENSITY OF CURRENT/ CURRENT DENSITY
 2. DURATION OF CURRENT FLOW
 3. CONCENTRATION OF IONS AT THE ACTIVE ELECTRODE OR IN THE SOLUTION

TYPE OF ELECTRODE

SIZE AND SHAPE OF ELECTRODE CAN CAUSE A VARIATION IN CURRENT DENSITY AT THE SITE OF TREATMENT.

LESS THE SIZE OF ELECTRODE MORE WILL BE THE CURRENT DENSITY AND MORE IONS WILL BE TRANSFERRED.

INCREASING THE SIZE OF ELECTRODE WILL DECREASE THE CURRENT INTENSITY THUS REDUCES THE CONCENTRATION OF IONS AT THE ELECTRODE.

CURRENT INTENSITY & DURATION OF TREATMENT

LOW INTENSITY CURRENTS _____ MORE EFFECTIVE
INTENSITY OF CURRENTS _____ 5mA TO 12mA
DURATION _____ 15_ 20 MINUTES

METHODS OF TREATMENT

- Skin cleaned with soap.
- Hairy skin must be shaved.
- Electrodes at proper contact with skin. Use straps.
- Ions __ ointment __ a layer is applied at the site to be treated.
- Ions __ solution __ lint pad of absorbent material, soaked in ionic solution.
 - Appropriate ions are used specific condition.
 - The intensity of current & duration must be regulated appropriately.
 - Precautions to prevent burning.
- Use telcum powder if erythema is seen after treatment.



**COMMONLY USED IONS
AND THEIR
INDICATIONS**

POSITIVE IONS

IONS	USES
HYDROCORTISONE	Anti inflammatory: RA, Tendinitis, Bursitis
CALCIUM CHLORIDE	(calcium ion is used): Effective in joint stiffness & Post traumatic pain
ZINC OXIDE	Healing properties: Ulcers, Open lesion
MAGNESIUM	An excellent muscle relaxant, Good Vasodilator, Mild analgesic: Arthritis
DEXAMETHASONE	Anti inflammatory: Musculoskeletal conditions

NEGATIVE IONS

IONS	USES
IODINE	Effective sclerolytic agent, An excellent bacteriocidal & Fair vasodilator: Adherent scars, Adhesive capsulitis.
CHLORIDE	Effective sclerolytic agent: Scars, Keloides, Burns.
SALICYLIC ACID	A general decongestant, Sclerolytic & Anti inflammatory.
SODIUM OR POTASSIUM CITRATE	RA
EITHER +/- TAPE WATER	Hyperhidrosis, <u>Glypyronium bromide is also used along with tape water in the cases of Hyperhidrosis.</u>

SAFTEY AND PRECAUTIONS

- **ANTICHOLINERGIC COMPOUNDS HAVE AN ATROPINE_ LIKE ACTION THEREFORE PATIENTS MAY FEEL DRYING OF MOUTH AND THROAT.**
- **THE PATIENT MAY FEEL RESTRICTION OF GENERAL BODY SWEATING AND THEREFORE ADVISED NOT TO GO FOR ANY STRENOUS ACTIVITIES, WHICH MAY REQUIRED SWEATING.**



THANKS
