

THERAPEUTICS

IONTOPHORESIS STUDY ON 20 CASES OF CHRONIC* NONSPECIFIC ECZEMAS IN INDUSTRIAL WORKERS

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INTRODUCTION

The Chronic Eczemas of Non-specific etiology where various therapeutic measures had been tried with uncertain results were taken up for study on effects of Iontophoresis. The principle of Iontophoresis was combined with the modern technique in electrotherapy that made it possible to carry out this work on a standard basis.

PRINCIPLE

One per cent solution of copper sulphate was electrolyzed so that the positively charged copper ions repelled and got absorbed into the immediate layer of the skin, producing an organic compound of copper (copper proteinate) with proteins of cells as an end result of physico-chemical reaction (Sidney Licht-1959).

SELECTION OF CASES

All cases were of non-specific etiology having chronic localized patches of eczema. They were classified into 2 broad groups.

Group	No. of cases	Signs & Symptoms
I	13	Oozing of and on, Pruritus++
II	7	Lichenified Dry Type Pruritus++

DURATION OF DISEASES

No. of cases	Years
8	1 to 2 years
5	2 to 4 years
2	5 years
4	6 to 8 years
1	20 years

Received for publication on 19-12-1964.

*Paper read at the 7th All India Conference of Dermatologists & Venereologists in January 1965 at Bangalore.

All these cases had undergone treatment before in some form or other including indigenous drugs.

PROCEDURE

All other treatment local and systemic was discontinued during this therapy. The area of skin was cleaned thoroughly with Savlon lotion and dried. A pad dipped in 1% solution of copper sulphate was placed over the lesion covering it up completely. The pad over the lesion was connected to the positive pole by means of a plate electrode of the same metal, placed firmly over the pad, and the indifferent electrode was placed elsewhere. Direct galvanic current was turned on from Neuroton Electronic Stimulator, keeping the density of the current according to the size of the pad, maximum being 2 milliamperes per square inch. This duration of treatment varied from 10 to 30 minutes. The frequency of treatment varied from case to case minimum being once a week. The number of sittings was ranging from 5 to 12.

INFERENCE

After 2 to 3 sittings all patients except one experienced relief from pruritus. The cases where slight oozing was present before treatment showed improvement and the lesions had gone dry by the end of third sittings. The case that did not get any relief from pruritus was further investigated and found to be a case of "neurosis". After a number of sittings a dull erythema was noticed at the site of the treatment which did not give any appreciable discomfort to the patients. As "No oozing" and "No pruritus" were the signs of improvement.

MODE OF ACTION

A three fold action was noticed in this experiment.

(1) *Formation of copper proteinate* (Sidney Licht 1959)—A thin layer of copper proteinate was deposited on the surface of the affected area. This resulted into (a) formation of a mechanical barrier to the invading organisms (b) Astringent action of this layer prevented oozing. (c) An antiseptic layer to the microbes present in that area.

(2) *Vasodilatation* (Ronald Harris 1959):—Local vasodilatation occurring in this form of therapy led to a better blood supply to the affected area thereby (a) improving its nutrition, making the skin more resistant to infection and (b) helping in removal of excess of pigmentation in the affected area

(3) *Action on cutaneous nerve endings* (Clayton 1958):—The action of ionised copper on the cutaneous nerve endings seems so be often counter irritation with mild caustic action, causing a reduced conductivity and excitability of superficial nerve endings resulting into antipruritic effect.

FOLLOW UP

As this work was taken up only two years ago a long term follow up of cases was not possible. Most of the cases had a follow up of 6 months to 1 year. Out

of 13 cases of group I only 9 turned up for follow up. Out of which 7 cases have shown complete relief from all the symptoms. In remaining two cases pruritus and oozing once more returned. Out of 7 cases of Group II six cases attended for follow up. Four cases seem to have had relief. One did not show much improvement and one was refractile to therapy which was a case of neurosis.

DISCUSSION

The application of principle of Iontophoresis was limited to cases of chronic eczemas only. A further trial on large number of cases is desirable with a long term follow up. The other types of cases likely to benefit from this are localized neurodermatitis and chronic lichenified contact dermatitis. On the basis of the work by Haggard H. W. 1939, selection of copper sulphate was done. However a solution of zinc sulphate can also be used and the result compared.

A comparative study of cases put on Iontophoresis therapy and those put on "Superficial X-Ray Therapy" for the same is worth considering.

SUMMARY

20 cases of Eczema of chronic nature and non-specific etiology were put on copper "Iontophoresis" therapy. The number of sittings varied from 5 to 12. Relief from pruritus was evident after 2 to 3 sittings and by 10 to 12 sittings marked clinical improvement was noticed in all cases except one. This was as a result of copper proteinate formation, vasodilatation, and counter irritation effect on the cutaneous nerve endings.

ACKNOWLEDGEMENTS

We are very thankful to Dr. D. S. Gogte, MB., MS., Superintendent, Mahatma Gandhi Memorial Hospital for his kind permission to carry out this research work in the institution.

We are highly grateful to the Chairman, Board of Management, Mahatma Gandhi Memorial Hospital for his kind permission to publish this work.

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