METHYLENE BLUE AND PHOTO INACTIVATION IN HERPES - PROGENITALIS

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Summary

In this study Herpes-progenitalis an intractable Venereal disease has been treated with local application of 0.1% Methylene blue and photo inactivation by ultraviolet rays. Results obtained in this study are convincing. Treatment cost is low as compared to the other types of treatment instituted for this condition.

Herpes-progenitalis is a venereal disease characterised by recurrent painful itchy, vesicles on glans, prepuce, coronal sulcus or shaft of penis in males; introitus, cervix or urethral meatus in females. It may be associated with urethritis, with or without lymphadenopathy.

The disease is caused by a D. N. A. virus with two antigenic variants, a type I and type II having been identified[1]. The virus has special affinity for the genital mucosa. Different types of therapy like repeated small pox vaccinations, systemic antibiotics, administration of vit. B complex have all been used in the treatment of this intractable condition. It has been known for some years that this virus forms complexes with certain dyes such as neutral red, proflavin and toludine blue and that these complexes are subject to rapid biological inactivation when exposed to visible light in the presence of molecular oxygen[2].

In this study solution of methylene blue 0.5% application followed by U. V. Rays exposures in erythema (E) doses have been used for the treatment of this condition.

Material and method

50 cases of herpes progenitalis attending the Dermato-Venereology department of S. M. S. Hospital, Jaipur were taken for this study and subjected to routine urine examination, dark ground illumination test and blood examination for sugar and V. D. R. L. tests to detect any concomitant diabetes or syphilitic infection. As far as possible standard conditions were maintained and only cases of herpes progenitalis were included in this study. Part involved was cleaned, dried and 0.1% methylene blue solution applied liberally on the bases of the vesicles after cleaning and unroofing the vesicles.

Elvak U. V. Rays lamp was used for ultravoilet rays exposure over the

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lesions. Duration of exposure to achieve 'E'$_1$ (Erythema reaction) was determined in individual case by first testing over the skin of forearm and abdomen. Normal area was protected and involved part exposed to ultraviolet rays. General output to produce 'E'$_1$ reaction was 3 minutes from a distance of 30" from this lamp. Doses were given on alternate days for 6 to 7 sittings (Maximum), and 2 sittings (Minimum), depending upon the response to therapy.

Patients were instructed to avoid photo sensitisers particularly sulpha drugs, tetracycline, Demethyl chlortetracyclin, Griseofulvin and food articles particularly lobsters and eggs.

Observations

Maximum number of cases i.e., 32% and 30% were seen between 21 to 30 years and 31 to 40 years respectively representing the age of maximum sexual activity. Their age incidence is shown in Table 1.

TABLE 1
Age incidence

No. of cases	Age in years
Nil	0–10
10	11–20
16	21–30
15	31–40
9	41–50

Only 8% cases were females (Table 2). This may represent either a true low incidence in women or a false figure indicating the fact that women in general are more reluctant than men to attend a clinic for sexually transmitted diseases.

TABLE 2
Sex incidence

No. of cases	Sex
46	Male
4	Female

In 74% of cases the disease was present for 1 to 7 days only. In 10% it was present for 15 days. In 8% lesions were recurrent for 2 months and in another 8% for 1 to 2 years (Table 3).

TABLE 3
Duration of illness

Duration of lesion	No. of cases
1- 7 days	37
8-15 days	5
16-60 days	4
1- 2 years	4

In 40% of cases lesions were present on both glans and prepuce. In 32% they were confined to prepuce and in 20% to glans. In female patients lesions were confined to the introitus in 75% of cases (Table 4).

TABLE 4
Site of the lesions

Site of lesion	No. of cases
Prepuce	16
Glans	10
Prepuce and glans	20
Introitus	3
Cervix	1

34% of cases became asymptomatic after the 2nd application and exposure, 16% after third, 20% after fourth, 14% after fifth, 10% after sixth and 6% after seventh exposure to U. V. Rays (Table 5).

TABLE 5
Response to treatment

No. of cases	No. of exposures required to relieve symptoms
17	Two
8	Three
10	Four
7	Five
5	Six
3	Seven

In 6% of cases recurrence was noticed after 3 months.

Discussion

Herpes-progenitalis is an intractable disease and recurrence rate is very high. All types of therapy including systemic use of antibiotics, B complex and repeated small pox vaccinations are in

use. In this study all adult patients ranging in age between 11 to 50 years were included, maximum number of cases being between 21 to 40 years of age, which represents the peak period of sexual activity. Female cases were only 8% and all their spouses were also suffering from the disease. Standardized conditions were maintained and cases with other sexually transmitted diseases were excluded. Most of the cases (74%) had the initial lesion of disease present for 7 days only.

All cases were given local application of methylene blue 0.1% solution liberally after unroofing the vesicles and they were given E_1 doses of U. V. Rays exposures for photo inactivation.

The principle of photo inactivation was first described by Raab[3]. Wallis and Melnick in 1964[2] described how certain heterocyclic dyes produced inactivation of viruses on exposure to flourescent light.

Wallis & Melnick[2] had good results from treatment using photo dynamic inactivation in experimentally induced Herpes Keratitis. They noticed improvement in 70% cases within 48 hours. Duration of illness shortened appreciably but relapse rate was not reduced in their series. Felber in 1973[4] also used 0.1% solution of neutral red followed by U. V. Rays exposure in herpes progenitalis with good results. He reported 87% success rate in recurrent labial and genital herpes.

Herpes-genitalis caused by virus type 2 appears to be more sensitive to light treatment. Mucous membrane lesions respond quicker as compared to skin lesions.

This study confirms findings of Felber[4], Wallis & Melnick[2] that Herpes genitalis cases respond favourably to photo inactivation. Roome et al[5] used neutral red with photo inactivation in the treatment of herpes genitalis.

Taylor & Doherty[6] compared the results of treatment with proflavine photo inactivation, Idoxuridine ointment and normal saline.

Chang[7] used methylene blue 0.1% solution with light treatment for herpes simplex. He showed that virus appeared to be susceptible to photo dynamic action of the dye with U. V. Rays exposure. Certain dyes have been found to have an affinity for the guanine base portions of D. N. A. and cause disruption of the molecule on exposure to light. In their series most of the cases who had lesions of short duration, became asymptomatic after two applications of methylene blue and exposure to U. V. Rays.

The results obtained in this study are convincing. The lesions responded to treatment quite early. Recurrence rate has been low, and only after a lapse of 3 to 4 months. This is in accordance with the result obtained by Felber[8].

The method of treatment with photo inactivation is safe, simple and relatively inexpensive. It does not require special equipment or multiple office visits.

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