Treatment of Impetigo with Sulfonamide-Urea Powder

Rees B. Rees, M.D., Edwin M. Hamlin, M.D., and James P. McGinley, M.D., San Francisco

SUMMARY

Sulfonamides can be used in the treatment of impetigo with vastly increased safety and with more effectiveness in powder rather than ointment form when combined with urea powder in a ratio of approximately three parts of sulfonamide to one of urea.

Of 701 patients treated with such a mixture, 95.6 per cent were cured within a week. The only complication was local dermatitis which occurred in 0.57 per cent of patients. This compares favorably with results obtained with newer and expensive drugs which usually have the disadvantage of being used in a greasy vehicle.

The low incidence of sensitivity reaction to the sulfonamide-urea powder is perhaps ascribable in part to the avoidance of a greasy vehicle.

SULFONAMIDES combined with urea as a powder for topical use against impetigo are highly effective, safe, and simple to use. In addition, they are clean, cheap, and do not have the occlusive, heating, smearing effect of an ointment vehicle. The avoidance of such a vehicle may play some part in reducing the sensitizing tendency of the sulfa drugs.

CRITERIA FOR SATISFACTORY LOCAL APPLICATION

Sulzberger and Baer12 pointed out that any new topical agent should be evaluated for therapeutic effect, for sensitizing capacity, and with regard to whether it may be used systemically. And, if it may be used systemically, it is important to know whether the sensitizing effect of previous topical use may foreclose use of the drug parenterally or enterally, perhaps as a life-saving measure, in treatment of a general illness. (This consideration may apply to practically all the newer antibiotics also. Yet, although there have been repeated warnings against the indiscriminate local application of sulfa drugs, some investigators who join in these admonitions do not hesitate to recommend the newer drugs for the same purpose, even though the degree to which they cause sensitization has not yet been determined.)

La Londe and Gardner5 quoted studies in which it was noted that urea renders sulfonamide com-

---

Footnotes:
1. From the Department of Dermatology, Division of Medicine, University of California School of Medicine, San Francisco.
2. Presented before the Section on Dermatology and Syphilology at the 80th Annual Session of the California Medical Association, Los Angeles, May 13 to 16, 1951.
patient who had had previous exposure to sulfanamides had used 5 per cent sulfathiazole ointment on one occasion and the urea-sulfathiazole powder on two occasions without trouble. In all four cases, cool wet dressings were applied and the dermatitis cleared within a week.

DISCUSSION

There is now more confusion as to the treatment of impetigo than there was 15 years ago. As recently as 1949, Rothman and Shapiro believed that ammoniated mercury was the most commonly used agent. Miller and co-workers noted that a variety of ointment preparations, bacitracin, sulfanamides, penicillin, dihydrostreptomycin, and nitrofurazone, were rapidly effective, but that sensitization rates varied. They reported that dihydrostreptomycin ointment caused reactions in 3.7 per cent of patients, which was a lower incidence than that associated with penicillin, the sulfanamides and nitrofurazone but significantly higher than that with bacitracin. Sulzberger and Baer observed that aureomycin ointment, which has a relatively low sensitizing index (but higher than that of bacitracin or of the powder discussed herein) is a remarkably effective non-irritating form of therapy for the common varieties of pyoderma.

MacKenna and Cooper-Willis in 1945 compared results of treatment of impetigo with microcrystalline sulfathiazole in 15 per cent suspension, with ordinary sulfathiazole in the same concentration, and with lotio cupro-zincica. The reported results, based on a statistical analysis of 1118 uncomplicated cases of contagious impetigo, suggested that, except for a sensitization rate of 2.5 per cent, treatment with sulfathiazole was superior.

Kile, Welsh and McAfee used neomycin (derived from Streptomyces fradiae) in treating 200 patients, several of whom were known to be sensitive to penicillin, streptomycin, bacitracin and aureomycin applied topically. None of the patients had allergic reaction to the new drug, although several were sensitive to the ointment base.

Bacitracin ointment approximates penicillin, nitrofurazone and the sulfanamide drugs in effectiveness, but 0.5 per cent of patients are sensitive to it—a sensitivity rate approximately the same as that of the 70 per cent sulfathiazole-30 per cent urea powder. In addition, it is inactivated by hydrogen peroxide and potassium permanganate and is unstable in an alkaline medium. In contrast, the powder may be applied without debridement or preliminary wet dressings, although such procedures do not interfere with its effectiveness.

In the series here reported upon, the sulfathiazole-urea powder was the most rapidly effective drug, and the sensitivity rate compared favorably with that of the safest drugs now in use. One reason, perhaps, for the low incidence of reaction was the shortness of the period of treatment. There was only one instance of systemic reaction—toxic absorption dermatitis. There is a theoretical possibility of such a reaction from absorption of an appreciable amount of the drug from large denuded wounds, but in such a case the patient usually has fever or other symptoms of systemic disease, and would be best treated with an antibiotic systemically to prevent a major complication of coccal infection. There is also the remote possibility of bizarre hypersensitivity of the periarteritis nodosa type, as described by Rich, but this remains theoretical with the use of the sulfonamide-urea powder as the authors advocate. A number of patients used the powder many times without having difficulties of any sort.

A minority of the patients in each of the groups treated by the various means received small exposures of superficial fractional x-ray therapy for diseases accompanying the impetigo, such as underlying eczema or dermatitis.

REFERENCES