

# Anabolic Steroid as an Adjuvant in the Treatment of Chronic Lepra Reaction and ENL Under Corticosteroid Therapy

S. CHOUDHURY, S. KUNDU, S. GHOSH AND S. HAZRA

*Department of Leprology, School of Tropical Medicine,  
Calcutta-73, India*

Fourteen lepromatous patients in the various stages of reaction with ENL episodes were put on Methandienone in addition to steroid therapy. Methandienone, an anabolic steroid, was found to be useful as an adjuvant and helped both in reducing the dosage of steroid needed, and in making possible the institution of DDS in about 60% of cases.

## Introduction

Various anabolic steroids are known to be good adjuvants in the treatment of a number of chronic protracted diseases which give rise to an excessive catabolic process. In pulmonary tuberculosis these agents have been found useful as an adjuvant in addition to anti-tuberculous therapy (Nandi *et al.*, 1962; Frank, 1963; Miczoch, 1962). Miczoch (1962) laid more stress on the use of anabolic steroids to combat excessive catabolic processes occurring in pulmonary tuberculosis, a chronic inflammatory disorder. He further observed the usefulness of anabolic steroids in patients receiving corticosteroids for a long time, as the latter exert an additional catabolic effect. Similar observations were reported by a number of workers (Aepli, 1964; Editorial, 1968; Roy, 1964; Mitra, 1964; Bhatia and Roy, 1966) who advocated the usefulness of anabolic steroids in the treatment of chronic protracted diseases, together with specific therapy or in combination of specific therapy and corticosteroids.

Chronic lepra reaction and chronic ENL are well known enigmas, especially in respect to their therapeutic management, and these chronic inflammatory processes are mostly steroid dependent (Moldawar, 1968; Editorial, 1970). The inflammatory disorders, i.e. lepra reaction and ENL, produce a catabolic process resulting in loss of weight, reduced muscle tone, osteoporosis, muscular wasting and pain all over the body, and presumed reversal of serum albumin-globulin ratio with hypoalbuminaemia (Kapoor *et al.*, 1971; Balkrishnan, 1965; Deluma, 1967; Mukherjee and Ghosh, 1972; Tarabini, 1958; Paras, 1950).

These are further aggravated by the addition of steroid therapy. Nandi *et al.* (1962) observed prevention of protein catabolism and considerable improvement

in the blood biochemistry as regards serum protein and albumin globulin ratio with anabolic steroids used as an adjuvant in addition to specific therapy.

Tarabini (1958) was of the opinion that serious symptoms of leprosy are caused by 3 factors, of which changes in the blood serum protein, i.e. diminution of albumin, increase of globulin and deposition of paraprotein (amyloidosis) in the viscera are most dangerous. Paras (1950) reported that lowering of serum calcium in lepra reaction is not due to disturbed calcium metabolism but is a consequence of reduction of albumin concentration in the serum.

Considering all the above observations it was thought worthwhile to study the place of anabolic steroid as an adjuvant in the management of chronic lepra reaction and ENL in patients receiving steroids for a long period.

### Material and Methods

Fourteen lepromatous cases in the various stages of reaction with ENL episodes at frequent intervals were selected for the study. All the patients had been taking steroids regularly in a dose varying from 20-30 mg daily for a prolonged period ranging from 6 months to 2 years for the control of their chronic reaction and ENL episodes. Any attempt to induce specific chemotherapy with sulphone, long-acting sulphonamides and other drugs was faced with utter failure.

Routine investigations included proper recording of clinical findings, blood counts, urine examination, and periodical serum protein estimation. Bacteriological examinations were repeated at intervals. All of the patients were put under Methandienone 25 mg intramuscular injection twice weekly for 2 weeks, followed by 25 mg once a week for 12 weeks. Along with Methandienone, the dosage of steroids was reduced by 5 mg every 2 weeks and sulphone was administered in a dosage of 10 mg once a week to every patient for 4 weeks, followed by 10 mg twice weekly.

### Results

All the patients responded clinically by gain in weight, marked reduction in oedema of the extremities and return of appetite with a sense of well being. In 6 cases no episodes of lepra reaction or ENL were observed during this period, the dosage of steroid was reduced to zero, and all these 6 cases were able to tolerate sulphone 10 mg twice weekly without showing any tendency to reactional episodes. In another 4 cases reactional episodes continued but revealed manifestations of milder nature with lesser frequency. In all these 4 cases, the dosage of steroid was reduced to one-fourth of the initial dose and sulphone was introduced 10 mg twice a week with good tolerability. The remaining 4 cases though improved, showing increased tolerance to sulphone and reduction of dosage of steroids, could not be followed up regularly because of their absence from the clinic. Bacteriological improvement was without significance. Other investigations revealed no abnormality. Assessment of serum protein estimation (vide Table 1) showed increase in total protein in 6 cases, increase of albumin in 6, and increase of globulin in 3 cases as compared to the initial findings. On further scanning it has been found that a slight increase of globulin fraction occurred in 3 cases in spite of moderate clinical improvement with Methandienone.

TABLE I  
*Estimation of serum proteins*

| No. | Name | T.P.<br>(g) | Initial     |                 | After 3 months |             |                 |
|-----|------|-------------|-------------|-----------------|----------------|-------------|-----------------|
|     |      |             | Alb.<br>(g) | Globulin<br>(g) | T.P.<br>(g)    | Alb.<br>(g) | Globulin<br>(g) |
| 1.  | K.M. | 7.6         | 3.6         | 4.1             | 8.1            | 4.8         | 3.3             |
| 2.  | B.D. | 7.8         | 3.9         | 3.9             | 6.9            | 3.8         | 3.1             |
| 3.  | J.S. | 6.9         | 3.2         | 3.7             | 7.4            | 4.2         | 4.2             |
| 4.  | G.R. | 8.2         | 3.6         | 4.6             | 8.9            | 4.6         | 4.3             |
| 5.  | R.B. | 7.4         | 4.4         | 3.0             | 7.1            | 3.8         | 3.3             |
| 6.  | S.D. | 7.9         | 4.4         | 3.5             | 8.0            | 4.6         | 3.4             |
| 7.  | B.S. | 7.1         | 4.8         | 2.3             | 8              | 4.7         | 3.3             |
| 8.  | M.S. | 9.1         | 3.8         | 5.3             | 7.6            | 4.1         | 3.5             |
| 9.  | A.G. | 8.6         | 4.6         | 4               | 7.9            | 4.4         | 3.5             |
| 10. | P.K. | 7.2         | 4.0         | 3.2             | 8.0            | 4.9         | 3.1             |

### Discussion

The beneficial effects of anabolic steroid in chronic wasting diseases, and particularly in patients who are on prolonged steroid therapy are reported by many (Nandi *et al.*, 1962; Frank, 1963; Miczoch, 1962; Aepli, 1964; Editorial, 1968; Roy, 1964; Mitra, 1964; Bhatira and Roy, 1966). A review of the literature gave scanty information regarding the efficacy of Methandienone in the management of lepra reaction and other reactional episodes. Usefulness of anabolic steroids in chronic wasting disease receiving steroids for a prolonged period is not empirical as this has been substantiated by the results of observation with anabolic steroids. Similar good results have been achieved with anabolic steroids in chronic lepra reaction and chronic ENL as evident by marked clinical improvement with lesser or no occurrence of reactional episodes, appreciable reduction in the requirement of steroids sometimes leading to stoppage of steroid. Further, it has been observed that sulphone could be well established in those cases without precipitating reactional episodes, with almost normalization of albumin-globulin ratio in the 60% cases of our series, and reduction of globulin in 70% cases.

It appears that Methandienone has some role as an adjuvant in the management of chronic lepra reaction and chronic ENL, especially with regard to dose schedule of steroids and institution of DDS in about 60% of cases.

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