Effects Of Durabolin On Pulmonary Tuberculosis

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Introduction

Tuberculosis is a chronic wasting disease which turns fatal if not treated in time. It needs prolonged, uninterpreted and effective drugs regimen for cure.

Our present study has shown that if anabolic steroids are added to antitubercular drugs the cure is further enhanced.

Nandrolone Phenyl Propionate (DURABOLIN) is a long acting anabolic steroid which helps in protein synthesis from simple amino-acids. Besides this, DURABOLIN increases body weight and vitality, improves appetite and has mood elevating property. Due to this effects of inducing positive nitrogen balance, the body weight increases and this increase in body weight is as a result of increase in protein synthesis in the body and not simply due to water retention. The increase in body weight induced by the administration of DURABOLIN is permanent.

Material And Method

A trial with 100 patients of sputum positive pulmonary tuberculosis was conducted to observe the effects and untoward of DURABOLIN in enhancing the process of healing in

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pulmonary tuberculosis and also its effect on body weight during treatment. Newly diagnosed cases without previous treatment for pulmonary tuberculosis, with sputum positivity on direct microscopy and patients who lived nearby and could be traced easily were included in this study. These patients were divided randomly into two groups. Patients in group I were given streptomycin 0.75 mgs daily for a period of 60 days. They also received Isoniazide and Thiacetazone in standard doses for one year and weekly injection of DURABOLIN 25 mgs for a period of 3 months. Patients in group II received Streptomycin 0.75 mgs for a period of 60 days and Isoniazide and Thiacetazone in standard doses for the same period as in group I.

Patients included in this study were given a thorough physical examination and the following investigations were also carried out :

1. Sputum microscopy for acid fast bacilli.
2. Total and differential WBC count and ESR.
3. X-ray chest every three months.
4. Weight recording.

The results of the physical examination and investigations were recorded in the individual treatment card. Each individual was examined every fortnightly and the following findings were recorded in the treatment card.

1. Sputum microscopy.
2. Weight gain in Kgs.
3. ESR.
4. Improvement in appetite.
5. General feeling of well being.
6. Finding in skiogram of the chest every three months.

OBSERVATIONS

18 patients were excluded from this study because some of them died before the completion of the trial. A few patients were excluded from the study as they showed untoward effects of the antitubercular drugs. Those patients who could not be traced as they did not give proper address or migrated to some other places without prior information were also not included in this study.

At the end of the trial period of one year 82 patients remained for final assesment, 47 on each group.

The age and sex distribution of the patients included in this study is shown in table I.

Table I

	Trial group			Control group		
	male	female	total	male	female	total
0 to 10	--	--	--	--	--	--
11 to 20	4	5	9	4	--	4
21 to 30	14	5	19	13	--	13
31 to 40	7	1	8	9	4	13
41 to 50	4	--	4	7	2	9
51 and over	1	--	1	1	1	2
Total:			41			41

Weight Gain

The incidence of weight gain at the end of study period is shown in table II.

Table II

Weight gain in Kgs	Trial group	Control group
No weight gain	1	3
1 to 3.9 Kgs	1	18
4 to 6.9 Kgs	16	17
7 to 9.9 Kgs	18	3
10 to 11.9 Kgs	4	0
Over 12 Kgs	1	0

There was significant improvement in appetite and feeling of well being in all patients receiving DURABOLIN compared to the control group. Out of 41 patients receiving DURABOLIN, 2 patients gained excessive weight (17 Kgs and 12 Kgs) in just two months time. Only one patient in the trial group did not gain weight.

Though there was a general trend of weight gain in the control group of patients the mean weight gain was only 3.3 Kgs as against 6.8 Kgs in the trial group, which is significant according to the following calculations.

Using t test for the difference of mean

eg,

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2 + S_2^2}{2}}}$$

$$\text{where } \bar{X}_1 - \bar{X}_2 = \sqrt{\frac{N_1 S_1^2 + N_2 S_2^2}{N_1 + N_2 - 2}}$$

$$= \sqrt{\frac{N_1 + N_2}{N_1 N_2}}$$

We have t calculation 6.48

at t test at 0.5 level is at 80 degree of frequency

$$= 1.66$$

Hence the difference of mean is significant i.e, the effect of DURABOLIN on weight gain is highly significant.

Radiological Improvement

In the basis of initial X-Ray findings, patients were divided into three groups, minimal advanced and far advanced cases. Table no III shows the incidence of patients with severity.

Table

Group	Minimal	Moderately Advanced	Far Advanced
Trial group	12	16	13
Control group	9	17	15
Total	21	33	28

This classification is based according to the classification of the American Thoracic Society 1969.

Minimal

The total area of diseases taken in the aggregate regardless of distribution, is less than the

area from the second condrocostal junction and the fifth vertebral body to the apex of the lung on one side and no cavity is demonstrable.

Moderate

The aggregate total area of scattered, small lesion less than one lung field or of dense, confluent lesions less than the equivalent of one third of one lung field. The total diameter of cavitation if present is less than 4 cms.

Far advanced

Disease greater in extent than moderately advanced.

From the radiological point of view there was improvement in the trial group as compared to the control group, such as healing of the lesion and closure of the cavity.

Side Effects of Drugs

Side effects like abdominal discomfort, skin rashes, vertigo jaundice of the antitubercular drugs used in this study were very few. Such side effects were observed less frequently in patients of the trial group.

Effects on ESR

There was marked fall in ESR of patients in both the groups with no significant difference in the control and the trial group. At the end of three months the mean fall of ESR of control and the trial group was from 75.3 mm to 36.6mm and 80.7 mm to 41.4mm trial group was from 75.3 mm to 36.6 mm and 80.7 mm to 41.4 mm respectively as shown in Table IV.

Table IV

	Initial ESR	Fall of ESR after 3 months
Control group	75.3	36.6
Trial group	80.7 (mean)	41.4 (mean)

Symtomatic Improvement

Patients in the trial group showed much improvement comparatively at a shorter period. They were relieved of chest pain, cough, and fever much faster than their counterpart in the control group.

Discussions

Anabolic steroid administration results in positive nitrogen balance thereby increases body weight. However if the body weight in normal individual at the beginning of the antitubercular treatment with anabolic steroids, weight gain is less compared to the underweight patients.

Compared to the control group, there was definite improvement in appetite, gain in weight, feeling of well being in patients receiving DURABOLIN.

Conclusion

From the result of our study, DURABOLIN could be excellent adjuvent drug in the successful management of different severity PULMONARY TUBERCULOSIS of different severity.

Scope for Further Research

In our present series of 82 patients with pulmonary tuberculosis DURABOLIN was found to increase body weight significantly compared to the control group. It will be interesting to observe the effect of DURABOLIN in underweight non tuberculosis cases.

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