RESPONSE TO RADIOACTIVE PHOSPHORUS TREATMENT OF POLYCYTHAEMIA RUBRA VERA IN MALAYSIANS: Analysis of 8 cases.

A. ZULKIFLI, PANIR CHELVAM, NG WENG HWA & S.K. DHARMALINGAM

INTRODUCTION

THE INCIDENCE OF Polycythaemia rubra vera in Malaysia is unknown. Between the years 1970 and 1977, only 8 cases of the disease were referred to the Radiotherapy Department, General Hospital, Kuala Lumpur for treatment with radioactive phosphorus. Although the use of radioactive phosphorus in the treatment of Polycythaemia rubra vera is established and documented for patients in the West (Szur *et al.*, 1959), these 8 patients are the first Malaysians to be treated with radioactive phosphorus. In this report we document the clinical and haematological response in these 8 Malaysian patients with Polycythaemia rubra vera who had been treated with radioactive phosphorus.

PATIENTS AND METHODS

Eight patients with Polycythaemia rubra vera were referred to the Radiotherapy Department, General Hospital, Kuala Lumpur, between 1970 and 1977. Of these, 6 were males and 2 were females. There were 6 Chinese and 2 Malays. Their average age was 53.3 years (range of 42 to 64 years).

All the patients satisfied the following laboratory criteria for the diagnosis of Polycythaemia rubra vera, namely, haemoglobin values greater than 16.5 g per 100 ml. for males and greater than 15.5 g per 100 ml. for females, red cell mass using radioactive chromium (51 Cr) greater than 35 ml per kg., total cell volume of greater than 85 ml per kg., hyperplastic bone marrow, and leucocytosis (greater than 10,000 per cu mm) and thrombocytosis (greater than 350,000 per cu mm) were not essential criteria. Secondary polycythaemia was excluded with arterial blood gases and intravenous pyelograms. Radioactive phosphorus was administered only when the patient's packed cell volume was 55 per cent or less. Patients with values greater than 55 per cent had venesection done to reach treatment levels. Three months after initial treatment another dose of radioactive phosphorus was administered in patients with no clinical or haematological remission and also in patients with clinical remission but with haematological relapse.

A full clinical examination and the relevant laboratory investigation were recorded at the initial visit. Following treatment with radioactive phosphorus, subsequent follow-ups were at monthly intervals for the first 3 months and then at 3 monthly intervals after that. At each visit, their response to treatment was recorded and a full clinical and haemotological assessment was performed.

RESULTS

The clinical features and response to treatment of the 8 patients is summarised in Table 1. Common presenting features were those of generalised pruritis, headache, vertigo and bleeding from peptic ulceration. Splenomegaly and hypertension were common signs. Thrombosis of the femoral vein was the presenting feature in one patient.

Seven out of our 8 patients achieved full remission. The average period of remission was 16 months. The haematological response to treatment is summarised in Table II. Although full haematological remission took effect after 3 to 6 months, the symptomatic improvement was felt much earlier. Pruritus, headache and vertigo

Dept. of Medicine,
National University of Malaysia, Kuala Lumpur.

A. ZULKIFLI, M.R.C.P. (U.K.)

PANIR CHELVAM, M.R.C.P. (U.K.)

NG WENG HWA, M.R.C.P. (U.K.)

Senior Consultant Radiotherapist, General Hospital, Kuala Lumpur.

S.K. DHARMALINGAM, K.M.N., M.B.B.S., D.M.R.D. (Eng.), F.I.C.S., S.A.G.S., S.A.C.N.P.

Table I

Clinical Response in Patients with Polycythaemia Rubra Vera to Radioactive Phosphorus.

Symptoms/Signs	No. of Patients	No. of Patients with response.
Pruritus	3	3
Splenomegaly	6	3
Headache/Vertigo	4	4
Hypertension	2	2
Haemorrhage		
a) peptic ulcer	5	5
b) nasal	1	1
Thrombosis femoral vein	1	1

Table II

Response of Relevant Haematological Values in Patients with Polycythaemia Rubra Vera to Radioactive Phosphorus Treatment.

Laboratory test	Patients with elevated values	Patients with response
Haemoglobin	8	7
Platelet count	6	5
White cell count	4	3
Packed cell volume	8	7
Red cell count	8	7

responded well to treatment. The 2 patients with hypertension had normal blood pressures after treatment. Splenomegaly (in 6 patients) was evident in only 3 after treatment. All the 5 patients with peptic ulcer symptoms were relieved of pain after treatment with radioactive phosphorus. The single patient with thrombosis of the femoral vein had complete relieve of his signs and symptoms of the thrombosis. He was also treated with anticoagulants. The hyperuricaemia that occured in 4 patients (uric acid level more than 7 mg per ml.) responded well to radioactive phosphorus treatment as well as to allopurinol.

No side effects were noted in any of our patients on treatment. On one patient, the platelet count dropped to 90,000 but no evidence of bleeding was detected.

DISCUSSION

Polycythaemia rubra vera is characterised by an absolute increase in the number of red blood cells and the red cell volume, accompanied by leucocythosis, thrombosis and splenomegaly. As the etiology of the condition is unknown, the treatment is directed at the relief of the signs and symptoms and at the reduction of total blood volume. This consists of either venesection alone or venesection with chemotherapy or venesection with radioactive phosphorus.

Full remission in 7 out of 8 patients amongst Malaysian patients compares well with that achieved by Szur *et al.* (1959), who had full remission in 82 per cent. He also records good symptomatic response in his patients. In our patients, pruritus, headaches, vertigo and hypertension responded completely to the treatment. Lawrence *et al.* (1957) noted that only in one-third of his patients with hypertension, did the blood pressure return to normal after the successful treatment of polycythaemia.

We wish to document the good response that occurs with radioactive phosphorus treatment amongst Malaysian patients. The disease has a bad prognosis untreated; Chievltz (1962) found that 50 per cent of untreated patients died within 18 months of the onset of the first symptom or sign. With radioactive phosphorus treatment, Lawrence (1955) quotes a median survival of 13.3 years.

All Malaysian patients with a raised haemoglobin must be investigated for Polycythaemia rubra vera and the treatment started immediately. The small number of patients referred (8 in 7 years) for treatment perhaps shows that the diagnosis is either missed or is made very later. It is also possible that the doctor in charge of the case is unaware of the availability of radioactive phosphorus treatment in our country.

SUMMARY

The prognosis of untreated Polycythaemia rubra vera is bad. We document the clinical and haematological response in the first eight Malaysian patients with the disease treated with

radioactive phosphorus. Full remission occured in seven and there was excellent symptomatic response. We emphasise that the diagnosis amongst Malaysians must be made early and the treatment started soon. We feel that a through clinical and haematological search amongst Malaysian patients might reveal more cases requiring treatment with radioactive phosphorus.

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