REDUCTION OF REACTION TO INTRAVENOUS IRON DEXTRAN WITH USE OF CHLOROQUIN

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The effectiveness of iron dextran complex in iron deficiency anaemia is generally accepted. The efficacy has been proved by a number of workers in India and abroad. The intravenous route for iron dextran is of recent origin. Nearly hundred publications in scientific journals about the intravenous route is a proof of the widespread interest it has evoked in the medical world. The advantages of the intravenous total dose iron dextran are recognised. The convenience of single dose, avoiding frequent visits to the hospital or a long hospital stay, no risk of abscess formation and a predictable rise in haemoglobin are some of the advantages. Reactions to iron dextran is still a problem to be reckoned with. Severe reactions are occasionally reported. The present attempts are aimed at reducing the reactions to iron dextran. Aspirin, antihistaminics, corticosteroids and sedatives are some of the drugs claimed to reduce the reactions to intravenous iron dextran. Byles (1970) reported a marked reduction in reactions to intravenous iron dextran after using chloroquin sulphate as a premedication in African patients. Byles reported 0.85 per cent local reaction and 1.28 per cent systemic reactions after a single dose of 300 mg. of chloroquin base. The purpose of the present communication is to study in Indian patients the effect of chloroquin sulphate in reducing reactions to iron dextran after its intravenous route.

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Material and Methods

Chloroquin sulphate was used as a premedication in 200 anaemic patients who were administered Iron Dextran by intravenous route in S.S.G. Hospital, Baroda. The selection of patients and the technique of administration of the Iron Dextran have been reported in detail in previous communications, Bhatt and Joshi (1968). The local and systemic reactions are recorded and compared with reaction rate with other premedications.

Initially, two tablets of chloroquin sulphate (equivalent to 300 mg base) were given half an hour before the test dose and one tablet (150 mg. base) repeated after six hours and finally one tablet after 12 hours. We found that patients showed more side reactions to chloroquin such as nausea, vomiting, visual disturbance, etc. The dose was then reduced to two tablets of chloroquin sulphate half an hour before the test dose and one tablet after six hours. This schedule was continued in all other patients.

Analysis

Table I compares the reaction rate in our series of 775 patients, out of whom

TABLE I

Reactions to Iron Dextran

	No. of cases	Systemic reaction rate
Other premedication	575	20%
Chloroquin sulphate	200	12%

575 received other premedication and 200 patients who received chloroquin sulphate. The systemic reactions were found in 20 per cent of cases with other premedication whereas it was only 12 per cent with chloroquin sulphate which is significant. Not only was the reaction rate reduced but also the severity and duration of the reactions was much less. The local reaction was 0.5 per cent in the 200 cases.

We have studied the reaction rate every month and come to the conclusion that there is a definite seasonal variation in reactions to intravenous iron dextran. Table II shows that reaction rate was 9

TABLE II

Seasonal Variations

June-October	82	14	17.0%
November-May	118	10	9.6%

per cent from November to May and it was 17 per cent from June to October. June to September in Gujarat is rainy season and the humidity in the air is high. We find that ailments like bodyache, backache and fever are more common during this period. We are not sure if the variation is related to iron dextran alone. It is quite likely that the reactions may be co-incidental to administration of iron dextran and are actually related to high humidity in the air and monsoon season. It is desirable to collect reports from other centres about reactions to iron dextran in relation to the seasons.

We have also studied the reaction rate in relation to the dose of iron dextran. Table III shows that reactions are mini-

TABLE III

Reactions in Relation to Dose

11-20 ml.	3.5%
21-30 ml.	14.0%
31-40 ml.	22.0%
41 +	35.0%

mal if the dose of iron dextran is upto 20 ml., but if the dose exceeds 40 ml. there is a rise in reaction rate. We suggest that it is better not to exceed 20 ml. of iron dextran at one time. If the total calculated dose exceeds 20 ml. it should be given in two divided doses at 24 hours interval.

It may be asked how chloroquin sulphate helps in reducing reactions to iron dextran. Byles claims that malarial parasites no longer appeared in association with generalised reactions. By suppressing clinical malaria, it may help in reducing systemic reactions. Chloroquin may also act by direct suppression of inflammatory response effect on cell medicated immuno mechanism similar to autoimmune disease. The exact mechanism is however not understood. Malaria though prevalent in Baroda is not so common and so the chloroquin effect in reducing the reactions to iron dextran is not likely to be due to its effect on malarial parasites. It is likely that chloroquin acts by nonspecific immuno suppressive effect. The fact remains that after using chloroquin as a premedication to intravenous iron dextran the systemic reactions were reduced from 20 per cent to 12 per cent with definite reduction in severity and duration of the reactions.

We conclude that we have not succeeded in finding a final solution to this aspect of iron dextran therapy. However, we do feel that the use of chloroquin has help-

ed in reducing the reaction rate and we advise its use as routine in areas where reaction is posing a problem.

Summary and Conclusions

1. Iron dextran was given to 200 anaemic women intravenously after premedication with chloroquin sulphate.

2. There was significant reduction in the systemic reactions to iron dextran after premedication with chloroquin sulphate.

3. The dose of iron dextran determines the reaction rate. If the dose exceeds 40 ml, at one time reactions are more.

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