Overprescribing iron tablets to elderly people in Sweden

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British Medical Journal, 1979, 2, 962-963

Summary and conclusions

Iron should not be prescribed to middle-aged men or older women with anaemia unless the possibility that the iron deficiency is caused by a gastrointestinal tumour has been considered. Thus the prescribing of iron to elderly people was investigated by studying four different prescription statistics and by reviewing records. Over one in 10 women aged over 65 were prescribed iron tablets. Men and women in the oldest age groups were prescribed iron most frequently. The reasons for prescribing iron were examined at a rural health centre. Out of 327 records of patients who were prescribed iron during 1975, 157 were randomly selected and reviewed. Only 18 out of 48 (38%) patients aged 45-75 (men) and 55-75 (women) and 29 out of 109 (27%) aged over 75 years had probable or possible iron-deficiency anaemia as established from the records. Only nine (19%) of the younger patients had a plausible reason for the anaemia other than a bleeding tumour. Ten (9%) of the older patients were considered to be inoperable cases. Thus, according to the records, only 18 (17%) of the patients over 75 years and nine (19%) of those in the younger age group should have been prescribed iron. About 70% of all the patients were considered not to have iron deficiency; 7% had had iron deficiency previously, and 20% probably had anaemia as a result of chronic disease; for 43% no real reason for the iron prescription could be found in the record.

Thus it is concluded that iron is overprescribed in Sweden, particularly for elderly people. It should not be prescribed until the possibility of a bleeding gastrointestinal tumour has been excluded.

Introduction

For many years the Swedish drug industry has emphasised the risks of iron deficiency. This propaganda may be connected with the comparatively high sale of iron tablets in Sweden (table I).

TABLE I—Yearly sale of iron in Sweden and other countries expressed as crowns per person

Sweden	2.0
Great Britain	0.68
Germany	0.64
France	0.4

The high consumption of iron in Sweden has advantages and disadvantages: iron deficiency has become less common,¹ but overprescribing of iron tablets to elderly people seems to occur.² Iron deficiency in older people is rarely due to poor diet.³⁻⁶ Iron intake does decrease with age⁷ but is not correlated with the haemoglobin concentration. Iron deficiency in older people, with or without anaemia, is normally a sign of bleeding, sometimes from a gastrointestinal tumour.⁴ For that reason the source of the bleeding should always be looked for when iron-deficiency anaemia is found in a man or postmenopausal woman.^{5 6 8 9} To recommend or prescribe iron tablets for only tiredness or anaemia is not justified.^{6 9} We performed this study

to see whether such prescribing occurs. Interestingly, we chose to study an area of Sweden very close to that where 32 years ago iron-deficiency anaemia was originally found to be prevalent.¹⁰

Methods

We studied the prescribing of iron tablets to elderly people in five ways. (1) From a study of living conditions in Sweden performed by the National Central Bureau of Statistics we obtained the proportion of people who stated that they had taken iron tablets during the two weeks preceding the interview.¹¹ (2) The Department of Drugs examined a random sample of 0.35% of the total number of prescriptions for the whole country and established the number of elderly people for whom iron had been ordered and bought.¹² (3) From the 1976 prescription statistics from the county of Jämtland in Sweden we calculated the proportions of people in different age groups who had been ordered iron and bought it.¹³ (4) From the computerised prescription data from the pharmacy in Tierp, a rural health centre equipped for research, we calculated the proportions of people in different age groups who had been ordered iron and bought it in 1975. (5) We reviewed case records to see why iron was prescribed.

The record review (5) was performed as follows. For certain years all prescriptions at the pharmacy in Tierp were recorded.¹⁴ From these data we selected two groups of patients out of those who were ordered iron in therapeutic amounts during 1975. Patients who had received preparations containing prophylactic amounts of iron were excluded. One group consisted of all 109 patients in the record aged 75 years and older. The second group consisted of a sample of men aged between 45 and 74 years and women aged between 55 and 74 years: we studied 48 records in this group. The Tierp health centre has a proper record library with professionally typed records. All results of laboratory and x-ray examinations are always included in the record. We studied results of haemoglobin examinations carried out when the prescription was made, results of estimation of iron and transferrin concentrations in serum and of examinations of the gastrointestinal tract, and any further information in the record that seemed relevant.

We also performed a pilot study of over-the-counter sales, in which 40 customers who bought iron during a two-week period answered some questions.

Results

Table II shows that in the different studies (but excluding the record review) between 6.7 and 12.8% of all older women and between 3.8 and 5.9% of all men had been ordered and had bought iron tablets. The proportion of men who are prescribed iron increases with age, as does the proportion of women after the age of 60 (figure). In younger women the proportion prescribed iron is highest around the age of 30.¹⁵

Table III shows the reasons for prescribing iron. Only 29 (27%) of all patients over 75 years and 18 (38%) of all patients under 75 years had probable or possible iron-deficiency anaemia. Of these, eight (7%) in the older group and nine (19%) in the younger group

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TABLE II—Proportions of people given iron prescriptions derived from four different sets of statistics

Method of study	Age (years)	% of women given iron prescriptions	% of men given iron prescriptions
Data on Swedish living conditions, 1974 ¹¹	65-74	6.7	5.0
Random sample of prescriptions, 1976 ¹²	65-74	12.8	5.9
Prescriptions in Jämtland, 1976	60-69	9.6	4.2
Prescriptions at pharmacy in Tierp, 1975	>65 (women) >45 (men)	12.3	3.8

Numbers of prescriptions of iron tablets/1000 people in different age groups of men and women.¹⁵

TABLE III—Reasons for prescribing iron in the 157 records examined. Figures are numbers ("n") of cases

	Older patients (n = 109)	Younger patients (n = 48)
Iron-deficiency anaemia due to gastrointestinal bleeding, not caused by tumour	8 (7)	9 (19)
Iron-deficiency anaemia due to gastrointestinal bleeding in patients considered to be inoperable	10 (9)	
Anaemia, probably due to iron deficiency	11 (10)	9 (19)
Earlier anaemia due to known source of bleeding	9 (8)	2 (4)
Anaemia or hyposideraemia, probably not due to iron deficiency	22 (20)	10 (21)
Reason unknown	49 (45)	18 (38)
Total	109 (100)	48 (100)

had a plausible reason for iron deficiency other than a bleeding gastrointestinal tumour. Another 10 (9%) of the older patients may have been considered to be inoperable cases. Thus only 18 (17%) of the patients over 75 years and nine (19%) of those between 45 (men) or 55 (women) and 75 years who got prescriptions for iron tablets ought to have got them without further investigations for the source of the bleeding.

Twenty-two (20%) of the patients aged 75 years and older and 10 (21%) of those aged under 75 years had anaemia or hyposideraemia that we did not believe was caused by iron deficiency. These patients had diseases that often cause so-called anaemia of chronic disease, such as rheumatoid arthritis, renal failure, myeloma, or pneumonia. Iron treatment is in general not considered to be effective in these types of anaemia.

From the records we could not find any reason for prescribing iron

for 49 (45%) of the patients aged over 75 and 18 (38%) of those aged under 75. These patients could be divided into two subgroups: 18 had no anaemia according to the record, and we guessed that fatigue had been the indication for the iron prescription; and for 49 no laboratory data could be found, so that the same reason for prescribing iron could probably be assumed.

Results of pharmacy inquiry—Swedish sales data for 1977 showed that the pharmacies sold 938 000 packages of iron tablets: 85 000 to hospitals, 597 000 on prescription, and 256 000 (30%) over the counter. Of the customers who answered our questions, one-quarter said that they had previously been ordered to take iron and one-half that they were tired and considered iron to be strengthening.

Discussion

The proportions of middle-aged and old people prescribed iron tablets, which were derived from four different sets of statistics, were all high. In middle-aged men the proportion with prescriptions for iron tablets was five times the proportion estimated to have iron deficiency (1%).¹⁶ Only 27 (17%) of the records examined contained the reason for prescribing iron. The results given here are our interpretations of the records. In each case there may have been reasons known to the prescribing doctor, based on personal knowledge of the patient, that were not in the record. We did not discuss each case with the prescribing doctor, but a joint discussion of our results elicited no reason for the prescriptions other than the ones mentioned.

If we assume that patients with gastrointestinal tumours are prescribed iron as often as people without, we can estimate that, among the about 185 000 middle-aged and elderly people in Sweden (men over 45 and women over 55) who are prescribed iron every year, there are about 150 men and 300 women with gastrointestinal malignancies.^{17, 18} Therefore, any prescribing information about iron tablets should emphasise that iron should be prescribed, particularly to elderly people, only after the doctor has considered the possibility that a bleeding gastrointestinal tumour may be present.

This investigation was performed in connection with a project on the quality and cost of medical care and with support from the Swedish Medical Council (project 27x-4734).

We thank the chief, Ms Lindskog, and the staff at the pharmacy Vita Björnen, Stockholm; Mr A Wessling at the Swedish National Pharmacy Co-operation, Stockholm; and the head physician Bengt Berg, the doctors, and other staff at the Health Centre at Tierp for their help.

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(Accepted 7 August 1979)