

The prevalence of intermittent digital ischaemia (Raynaud's phenomenon) in a general practice

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SUMMARY. The prevalence of intermittent digital ischaemia (IDI) has been determined in a sample of 520 patients aged 20–59 selected from the list of a Hampshire general practice. Sixty-three cases were identified using a postal questionnaire (response rate 87 per cent) and, where possible (69 per cent), histories were confirmed by interview. The estimated prevalence of IDI was 8.3 per cent in men and 17.6 per cent in women. A minimum estimate based only on histories confirmed at interview was 5.0 per cent in men and 10.4 per cent in women. Of the 63 cases identified, 12 had consulted their general practitioner because of the problem but only two had been referred to hospital. We conclude that the course of IDI is generally benign.

Introduction

CURRENT knowledge of intermittent digital ischaemia (IDI, Raynaud's phenomenon) has been derived principally from patients referred to hospital. Because these may not provide a representative picture of the disorder as it occurs in the general population, we have carried out a study to estimate the prevalence of IDI and to define its common characteristics in a population registered with a group practice in Hampshire.

Method

A stratified random sample was selected from the list of a Hampshire general practice to include 150 men and 150 women aged 20–39, and 100 men and 100 women aged 40–59. Twenty of these patients were found to have moved from the area and were replaced by a

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similar selection process. Each patient was sent a short postal questionnaire about symptoms of IDI. Reminders were sent to non-respondents after six weeks.

Probable cases of IDI were identified by the question: "Have you ever had attacks in which any or all of your fingers suddenly became cold and numb, and at the same time turned white?" One of us (J.H.) then attempted to interview all subjects who had answered positively to this question, with a view to verifying the symptoms.

Results

The final response rate (including those who had left the area and could not be contacted) was 87 per cent. Of the 450 subjects who returned questionnaires, 73 reported attacks in which one or more fingers became cold, numb and white. Fifty of these 73 agreed to be interviewed and in 40 the history was confirmed. On detailed enquiry the other 10 said that they had numbness of the digits but no definite colour change, and the diagnosis of IDI was therefore rejected. The analysis which follows is restricted to the 40 confirmed cases together with 23 probable cases, who responded positively to the initial questionnaire but who could not subsequently be interviewed.

Table 1 shows the distribution of cases by age and sex. Thirty-two subjects had developed symptoms before the age of 25, while in seven the onset had occurred at 45 or older. Symptoms had been present for at least one year in all but one case.

Patients varied considerably in the number of fingers affected (Table 2). In general the fingers were involved symmetrically, but in 16 cases the symptoms were confined to one hand only. The middle finger was affected most frequently (Table 3) and the thumb least often. Twenty-one subjects claimed that their toes were also involved on occasions, while the ears and nose were affected in six and two subjects respectively.

Attacks were most often provoked by cold (90 per cent of cases), and only occasionally by worry (6 per cent). Other precipitating factors included washing up

Prescribing Information

Zantac

RANITIDINE

Uses

Indications: Zantac Tablets are indicated for the treatment of duodenal ulcer, benign gastric ulcer, post-operative ulcer, reflux oesophagitis and the Zollinger-Ellison syndrome.

Mode of action: Zantac is a highly effective, rapidly acting histamine H₂-antagonist. It inhibits basal and stimulated secretion of gastric acid, reducing both the volume and the acid and pepsin content of the secretion. Zantac has a relatively long duration of action and so a single dose effectively suppresses gastric acid secretion for twelve hours.



Dosage and administration

Adults: The usual dosage is one 150 mg tablet twice daily, taken in the morning and before retiring. It is not necessary to time the dose in relation to meals. In most cases of duodenal ulcer, benign gastric ulcer and post-operative ulcer, healing occurs in four weeks. In the small number of patients whose ulcers have not fully healed, healing usually occurs after a further course of treatment. Maintenance treatment at a reduced dosage of one 150 mg tablet at bedtime is recommended for patients who have responded to short-term therapy, particularly those with a history of recurrent ulcer.

In the management of reflux oesophagitis, the recommended course of treatment is one 150 mg tablet twice daily for up to 8 weeks.

In patients with Zollinger-Ellison syndrome, the starting dose is 150 mg three times daily and this may be increased, as necessary, to 900 mg per day.

Children: Experience with Zantac Tablets in children is limited and such use has not been fully evaluated in clinical studies. It has, however, been used successfully in children aged 8-18 years in doses up to 150 mg twice daily without adverse effect.

Contra-indications

There are no known contra-indications to the use of Zantac Tablets.

Precautions

Treatment with a histamine H₂-antagonist may mask symptoms associated with carcinoma of the stomach and may therefore delay diagnosis of the condition.

Accordingly, where gastric ulcer is suspected the possibility of malignancy should be excluded before therapy with Zantac Tablets is instituted.

Ranitidine is excreted via the kidney and so plasma levels of the drug are increased and prolonged in patients with severe renal failure. Accordingly, it is recommended that the therapeutic regimen for Zantac in such patients be 150 mg at night for 4 to 8 weeks. The same dose should be used for maintenance treatment should this be deemed necessary. If an ulcer has not healed after treatment for 4 to 8 weeks and the condition of the patient requires it, the standard dosage regimen of 150 mg twice daily should be instituted, followed, if need be, by maintenance treatment at 150 mg at night.

Although the incidence of adverse reactions in clinical trials of one year's duration and longer has been very low and no serious side effects have been reported with Zantac treatment, care should be taken to carry out periodic examinations of patients on prolonged maintenance treatment with the drug as a safeguard against the occurrence of unforeseeable consequences of drug treatment.

Like other drugs, Zantac should be used during pregnancy and nursing only if strictly necessary. Zantac is secreted in breast milk in lactating mothers but the clinical significance of this has not been fully evaluated.

Side effects

No serious adverse effects have been reported to date in patients treated with Zantac Tablets. There has been no clinically significant interference with endocrine, gonadal or liver function, nor has the drug adversely affected the central nervous system even in elderly patients.

Further information

Drug interactions: Ranitidine does not inhibit the cytochrome P450-linked mixed function oxygenase enzyme system in the liver and therefore does not interfere with the effects of the many drugs which are metabolised by this enzyme system. For example, there is no interaction with warfarin or diazepam.

Pharmacokinetics: Absorption of ranitidine after oral administration is rapid and peak plasma concentrations are usually achieved within two hours of administration. Absorption is not impaired by food or antacids. The elimination half-life of ranitidine is approximately two hours. Ranitidine is excreted via the kidneys mainly as the free drug and in minor amounts as metabolites. Its major metabolite is an N-oxide and there are smaller quantities of S-oxide and desmethyl ranitidine. The 24-hour urinary recovery of free ranitidine and its metabolites is about 40% with orally administered drug.

Use in renal transplants: Zantac has been used without adverse effect in patients with renal transplants.

Product licence number 0004/0279

Basic NHS cost (exclusive of VAT) 60 tablets £27.43.

References: 1. Data on file, Glaxo Group Research. 2. Bories, P *et al.* Lancet 1980; 2 (8197):755. 3. Peden, N.R. *et al.* Acta Endocrinologica 1981; 96:564-568. 4. Nelis, G.F. and Van de Meene, J.G.C., Postgrad. Med.J. 1980; 56:478-480. 5. Henry, D.A. *et al.* Br.Med.J. 1980; 2:775-777.

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Glaxo

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Fast

Simple

Specific

Table 1. Distribution of cases by age and sex.

Age	Cases (number of questionnaires returned)	
	Males	Females
20-39	8 (130)	22 (135)
40-59	13 (91)	20 (94)

Table 2. Number of fingers affected per patient.

Number of fingers affected	Number of patients	
	Male	Female*
1	4	4
2	4	4
3	1	3
4	2	11
5	2	2
6	0	9
7	1	1
8	4	3
9	1	1
10	2	3

*Information was unavailable for one female patient.

Table 3. Frequency with which different fingers were affected.

Finger	Number of fingers affected*	
	Males	Females
Little finger	16	20
Ring finger	27	51
Middle finger	27	67
Index finger	22	50
Thumb	9	11

*Information was unavailable for one female patient.

(8 per cent) and other manual tasks (29 per cent). Twenty-nine of the 63 patients had experienced symptoms during the summer. In 21 subjects the symptoms had on occasions been of sufficient severity to interfere with their activities. Twelve had consulted their general practitioner because of the problem, but only two had been referred to hospital.

At interview one man reported that his symptoms had been attributed to scleroderma, and five subjects (four men and one woman) volunteered that their symptoms followed an injury to the affected fingers. None of the cases had worked with vibrating tools.

Discussion

There are no reliable, objective criteria to establish a diagnosis of IDI unless the patient is observed during an attack. The accuracy of any prevalence estimate depends therefore on obtaining precise histories, and for

this reason we chose to verify the symptoms reported in our initial postal questionnaire by interview. Unfortunately, despite a letter and repeated phone calls, we were unable to contact 19 positive respondents, and a further four did not wish to be visited. The 50 who agreed to an interview were representative of the whole group as regards age and sex, and in 40 the diagnosis of IDI was confirmed. Assuming that the accuracy of the response to the initial questionnaire was similar in those who could not be interviewed, we estimate the prevalence of IDI in our sample to be 8.3 per cent in men and 17.6 per cent in women. A minimum estimate, based only on confirmed cases and including in the denominator all subjects who were sent a questionnaire, is 5.0 per cent in males and 10.4 per cent in females. It seems unlikely that many true cases will have been missed by the questionnaire.

We are unaware of any previous attempt to measure the prevalence of IDI in the general population. Marshall and colleagues (1976) in their study of Raynaud's phenomenon as a side-effect of beta-blockers found symptoms in only one of their 21 control patients who were receiving methyldopa alone for hypertension. In a study of Raynaud's phenomenon in relation to atypical angina, Miller and colleagues (1981) used two control groups, each of 62 patients. In the first (patients with coronary artery disease) three cases of IDI were found, while in the second (no known heart disease) two cases were identified. These studies suggest a prevalence of less than 5 per cent. On the other hand, Lewis and Pickering (1933), when they questioned medical students and nurses, obtained positive histories in 25 per cent of men and 30 per cent of women. An estimate closer to ours was obtained by Taylor and Pelmear (1976), who in the course of an investigation into vibration white finger in 18 working populations found Raynaud's phenomenon unrelated to vibration in 5.3 per cent of men. Olsen and Nielsen (1978) considered 15 out of 67 Danish female physiotherapists to have primary Raynaud's phenomenon, a prevalence of 22 per cent. In our study the prevalence of IDI in women was two to three times that in men, a ratio similar to that reported in recent hospital series (Porter *et al.*, 1976; Balas *et al.*, 1979).

More than half our cases had developed their symptoms before the age of 25. However, since we were measuring life-time prevalence in a sample of whom the majority were under 40, this should not be taken as a direct measure of age incidence.

Although we did not attempt a comprehensive search for underlying disease in the cases which we identified, it was interesting that five subjects volunteered that their symptoms directly followed trauma to the fingers. This phenomenon was described by Lewis and Pickering (1933) but is rarely reported in hospital series.

Only a small proportion of patients with IDI are referred to hospital (two out of 63 in our series), and few (12) of our patients had consulted their general

practitioner. We therefore think that the course in most cases is benign. Porter and colleagues (1976) have suggested that all patients with Raynaud's syndrome should be regarded as at high risk of having auto-immune disease, and have recommended that when the symptoms of IDI are encountered a detailed search for auto-immune disease should be made. While this suggestion may be reasonable practice in patients presenting to hospital, it seems unlikely to be a profitable exercise when the disorder is encountered incidentally in general practice.

References

- Balas, P., Tripolitis, A. J., Kaklamanis, P. *et al.* (1979). Raynaud's phenomenon: primary and secondary causes. *Archives of Surgery*, **114**, 1174-1177.
- Lewis, T. & Pickering, G. W. (1933). Observations upon maladies in which the blood supply to digits ceases intermittently or permanently, and upon bilateral gangrene of digits; observations relevant to so-called "Raynaud's disease". *Clinical Science*, **1**, 327-366.
- Marshall, A. J., Roberts, C. J. C. & Barritt, D. W. (1976). Raynaud's phenomenon as a side effect of beta-blockers in hypertension. *British Medical Journal*, **1**, 1498-1499.
- Miller, D., Waters, D. D., Warnica, W. *et al.* (1981). Is variant angina the coronary manifestation of a generalised vasospastic disorder? *New England Journal of Medicine*, **304**, 763-766.
- Olsen, N. & Nielsen, S. L. (1978). Prevalence of primary Raynaud phenomenon in young females. *Scandinavian Journal of Clinical and Laboratory Investigation*, **38**, 761-764.
- Porter, J. M., Bardana, E. J., Jr., Baur, G. M. *et al.* (1976). The clinical significance of Raynaud's syndrome. *Surgery*, **80**, 756-764.
- Taylor, W. & Pelmear, P. L. (1976). Raynaud's phenomenon of occupational origin. An epidemiological survey. *Acta Chirurgica Scandinavica*, Suppl. 465, 27-32.

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Health centres

"Change continues to occur in individual practices, but we are sadly aware that the health centre as a whole has passed from a phase of growth and development to one of maintaining existing services. The management of the centre is mostly focused on solving problems of operating it, and there is little emphasis on innovation. We do not think that Woodside is greatly different in this respect from similar health centres."

Robinson, E. T. & Boddy, F. D. (1982). Ten years in a health centre: organisation and appraisal. *British Medical Journal*, **284**, 1237-1238.