PAPERS AND ORIGINALS

Study of symptoms in middle life with special reference to the menopause

G T BUNGAY, M P VESSEY, C K McPHERSON

Summary and conclusions

In an attempt to clarify the nature of the "menopausal syndrome" a survey of symptoms was carried out by means of postal questionnaires in a population sample of 1120 women and 510 men. Special care was taken to avoid letting the participants know that the survey was mainly concerned with the menopause. Response rates were 72% for women and 68% for men. Analysis of patterns of symptoms by age and sex showed that peaks of prevalence of flushing and sweating were closely associated with the mean age of menopause, coinciding with it or occurring a little after it. Less impressive peaks of prevalence of a group of minor mental symptoms were associated with an age just preceding the mean age of menopause. Complaints about aching breasts, irritability, and low backache diminished after the menopause. No association with the menopause was found for various other symptoms.

The results of this study support the view that the menopausal syndrome exists but do not, of course, provide any evidence concerning the effectiveness (or safety) of hormone treatment.

Introduction

Between 1971 and 1977 the number of prescriptions for hormones issued each year by British general practitioners to treat menopausal symptoms increased roughly threefold to about 1.2 million.¹ This trend in prescribing was accompanied by considerable commercial activity by the pharmaceutical industry, who, for example, issued advertisements conveying a highly optimistic view of the benefits of hormone treatment,

promoted clinical meetings dealing with the menopause and its management, and funded hospital menopause clinics and their research programmes. This stimulated our interest in the nature of the "menopausal syndrome," and we therefore examined relevant epidemiological reports.

We found that five major studies²⁻⁶ had measured the prevalence of various symptoms in population samples of women by means of questionnaires or interviews (a sixth report was later published⁷) and that a further study⁸ had dealt specifically with psychiatric symptoms. There was broad agreement between the studies that hot flushes and night sweats are associated with the menopause, but there was also less consistent evidence that many other symptoms might be associated as well. None of the investigations inquired whether the subjects experienced difficulty with intercourse. While individual studies had defects such as including only small numbers of subjects,⁵ examining only a narrow age range,^{3, 6} poor sampling,² and poor definition of menopausal state,² a key defect common to all was that they were discernible as being concerned with the menopause, thereby almost certainly introducing bias into the responses.

Our review of the epidemiological reports left us confused. We therefore conducted a study of our own during 1978, and some of our main findings are summarised here.

Methods

In an attempt to improve on earlier work we incorporated several special features in our study. Firstly, we surveyed a sample of men as well as a large number of women, the men in a sense serving as controls. Secondly, we chose a broad age band of 30-64 years to overcome the obvious disadvantages of studying a narrow range. Thirdly, we tackled the serious defect in previous studies (that they were discernible as being concerned with the menopause) by using a pair of self-administered postal questionnaires despatched with an interval of six to eight weeks between them. The first of these questionnaires inquired about the occurrence of about 40 different symptoms covering various possible physical, emotional, and sexual problems. No mention was made of the menopause either in the questionnaire itself or in the covering letter, which stated merely that the study was concerned with the health problems of men and women of working age. The second questionnaire was concerned with family, social, gynaecological, and treatment matters and thus contained

Oxford Regional Health Authority, Headington, Oxford

G T BUNGAY, MB, MFCM, community physician

University Department of Social and Community Medicine, Oxford

M P VESSEY, MD, FRCPE, professor

C K McPHERSON, MA, PHD, university lecturer in medical statistics

material that might have biased responses to the first if the two had not been separated.

The questionnaires were constructed *de novo* for the study and carefully pretested. When possible we used closed questions with strict yes/no answers, as these are particularly suitable for lengthy questionnaires. For symptom inquiries we considered the previous month to be a period suitable for easy recall. We hoped that a single stem question: "In the past month have you suffered from . . ." with the alternative answers "Yes" and "No" would lead the subject to take into account the frequency, intensity, and duration of the symptom when choosing the response, as any attempt to collect information on each of these measures would have been too complex.

The study population consisted of patients on general-practice lists in the Oxford Region. A convenient sampling frame was available in the form of computerised group-practice age-sex registers held by the Oxford Community Health Project, which covers 30 group practices.⁹ We selected eight of these, comprising 30 general-practitioner principals, to give a spread of urban, rural, and mixed practices. A random sample of 1120 women and 510 men was drawn, stratified to give about equal numbers of subjects in each five-year age group in the range 30-64 years. Twenty-two subjects were removed from the sample by their general practitioners for medical reasons, usually the presence of chronic illness.

The first questionnaires were distributed to the patients by post, together with a covering letter inviting co-operation. Three to four weeks later second copies of the questionnaire were sent to non-responders. The second questionnaire was posted to all subjects who responded to the first, six to eight weeks after the initial posting. Reminders were sent as before.

Results

The overall response rates for the pair of questionnaires were 72% for women and 68% for men. Using two separate questionnaires did not reduce the response rate by much, as 94% of the second questionnaires sent out were returned completed.

The social-class distribution of the study sample was broadly similar to that in the Oxford Region, indicating that in this respect at least the sample was representative of the population from which it was drawn.

Our basic approach to analysing the data was to calculate rates of positive response to the individual symptom questions in five-year age groups for each sex separately. One obvious advantage of such an approach is that it permits direct comparison of the data for women and men. Analysing the results for women by "menopausal age" categories is unsatisfactory because the numbers of postmenopausal women aged 49 or under and of premenopausal women aged 50 or over are small. The numbers in the menopausal age categories at different chronological ages reflect the distribution of age at menopause, which in our study was estimated to be approximately normal, with a mean of about 50 years and a small standard deviation (about three years). Such close linking of chronological and menopausal age enables symptom patterns by chronological age to be interpreted in terms of menopausal age.

We interpreted the symptom curves by visual recognition of patterns rather than by any formal statistical approach. We considered that each of the symptom patterns observed should correspond with one of three basic hypothetical types—namely, type 1: male and female curves parallel; type 2: male and female curves not parallel and female pattern not related to mean age at menopause; and type 3:

Symptom patterns by age and sex, showing different types of responses. The data for difficulty with intercourse (type 1 response) were obtained only from subjects who reported that they were sexually active.

male and female curves not parallel and female pattern related to mean age at menopause. Only type 3 patterns would suggest an association of the symptom with the menopause.

The figure shows some of the results of the analyses of symptoms. The pair of points for each five-year age group represents 99-115 women and 40-50 men. Women who had had an artificial menopause are included, but excluding this group (representing 14% of all the women) made no important difference to the shapes of the curves. This may, perhaps, reflect the fact that three-quarters of those with an artificial menopause reported that they had had hysterectomy without bilateral oophorectomy. As the points on the curves represent relatively small numbers (especially for the men) they are subject to considerable random variation, which should be borne in mind when the shape of the curves is considered.

The type 1 responses shown in the figure were elicited by questions about loss of appetite, crawling or tingling sensations in the skin (formication), headaches, and difficulty with intercourse. Similar responses related to questions about indigestion, constipation, diarrhoea, shortness of breath, coldness of hands and feet, dryness of skin, dryness of hair, aching muscles, aching joints, feelings of panic, feelings of depression, and stinging on passing water. Type 2 patterns were obtained in response to questions about difficulty in sleeping, loss of interest in sexual relations, frequency of passing water, and urgency to pass water. Type 3 patterns were found to be of two subtypes: in (a) the prevalence of symptoms in women peaked around the mean age of menopause, and in (b) the curve for women changed direction, starting around the time of the menopause. Examples of type 3 (a) patterns (figure) are flushing, sweating by night, difficulty in making decisions, and loss of confidence. Similar responses were elicited for sweating by day, anxiety, forgetfulness, difficulty in concentration, feelings of unworthiness, tiredness, dizzy spells, and palpitations. Type 3 (b) patterns were obtained in response to questions about irritability, low backache, and aching breasts.

The peaks of prevalence of night sweats, day sweats, and flushing in women are clearly associated with the mean age of menopause, coinciding with it or occurring slightly after it. The less impressive peaks of prevalence of a group of mental symptoms (difficulty with decisions and concentration, anxiety, loss of confidence, feelings of unworthiness, and forgetfulness) are clearly associated with an age just preceding the mean age of menopause. This holds also for the small peaks for dizziness, tiredness, and palpitations. The type 3 (b) patterns for aching breasts and irritability suggest that these symptoms are associated with the menstrual cycle and diminish after the menopause. The explanation of the similar pattern for low backache in women is less obvious.

We attempted to analyse the data by menopausal state and chronological age, but, as indicated above, large numbers would be needed to obtain clear results. The data suggested, however, that vasomotor symptoms are more closely related to menopausal state, and mental symptoms to chronological age.

Analysis of data about "life events" such as the death of a close relative, serious illness in the family, or unemployment showed little evidence that such problems cluster about the mean age of menopause. More women in their forties and fifties, however, reported that their children were leaving home, marrying, or causing special worry than did younger or older women. These events were positively associated with the reporting of symptoms, but the distinctive patterns already described were clearly apparent in women who claimed that they had no problems with their children.

Discussion

The sample of patients on general practitioners' lists was satisfactory and adequately representative of the general population. A reasonable reply rate was obtained, even though we used two questionnaires to avoid bias in response to the symptom questions. The survey of symptoms in both sexes over a wide age range enabled us to examine the pattern of complaints in the women in a way that complements and extends previous epidemiological studies. The finding of a clear association with the menopause for vasomotor symptoms concurs with the results of other studies.⁴⁻⁶ The results for psychiatric symptoms, with peaks of prevalence occurring just before the mean age of menopause, agree well with the conclusions of Jaszmann *et al*⁴ and Ballinger.⁸ The study provides no support for an association between the menopause and muscle and joint aches^{3,4} or

headaches.⁴ The patterns found for many symptoms apparently unassociated with the menopause agree with those found by Wood.⁷ The close similarity in the patterns of response by men and women to our question about difficulty with intercourse may perhaps indicate that discomfort experienced by the woman leads to complaints about discomfort in the man as well.

All the studies, including the present one, have been cross-sectional in type, but the data have been interpreted longitudinally. Some of the associations noted might possibly be attributable to differences between successive "cohorts" of women, though this is unlikely. A follow-up study tracing an individual group of women throughout middle life would, however, be extremely difficult to conduct and would demand great resources.

Since we undertook our study the prescription of hormones for menopausal symptoms has declined slightly. This arrest of the rapidly rising trend is almost certainly due to adverse publicity regarding the risk of endometrial cancer in women taking oestrogens.¹⁰ There is now, however, increasing acceptance of the view that this risk may be avoided by using oestrogen-progestogen combinations.¹¹ This implies that the former steeply rising trend in prescribing is likely to be resumed. While our study supports the view that there is a menopausal syndrome (principally affecting vasomotor symptoms), it does not, of course, provide any evidence concerning the effectiveness or safety of hormone treatment.

We thank the general practitioners who allowed us to study their patients; Mrs Beryl Martin for clerical help; and Dr Anne Anderson, who gave much help in the early stages of the investigation.

References

- Bungay GT. A study of symptoms in middle life with special reference to the menopause. MFCM thesis. 1979.
- Neugarten BL, Kraines RJ. Menopausal symptoms in women of various ages. *Psychosom Med* 1965;27:266-73.
- Prill HJ. Die Beziehung von Erkrankungen und sozialpsychologischen Fakten zum Klimakterium. *Med Klin* 1966;61:1325-8.
- Jaszmann L, Van Lith ND, Zaat JCA. The perimenopausal symptoms. *Medical Gynaecology and Sociology* 1969;4:268-77.
- Thompson B, Hart SA, Durno D. Menopausal age and symptomatology in a general practice. *J Biosoc Sci* 1973;5:71-82.
- McKinlay SM, Jefferys M. The menopausal syndrome. *Br J Prev Soc Med* 1974;28:108-15.
- Wood C. Menopausal myths. *Med J Aust* 1979;ii:496-9.
- Ballinger CB. Psychiatric morbidity and the menopause: screening of general population sample. *Br Med J* 1975;iii:344-6.
- Perry J. Medical information systems in general practice: a community health project. *Proc R Soc Med* 1972;65:241-2.
- Mack TM. Uterine cancer and estrogen therapy. *Front Horm Res* 1978;5:101-16.
- Sturdee DW, Wade-Evans T, Paterson MEL, Thom M, Studd JWW. Relations between bleeding pattern, endometrial histology and oestrogen treatment in menopausal women. *Br Med J* 1978;ii:1575-7.

(Accepted 14 May 1980)

ONE HUNDRED YEARS AGO I wish to bring before the notice of those members of the profession who practise midwifery, a simple plan which I have found an useful help when delivering with forceps. The liability of the foot to slip while using that instrument, and thus depriving the operator of a good deal of support at the very moment when he most requires it, must have been experienced by others besides myself, and led me to design the simple holdfast which is thus constructed.

I procure a small rectangular-shaped piece of sole-leather, with loop of strap attached, large enough to admit the toe of my boot. To the piece of sole-leather, I fasten with screws two of the ordinary cricket-spikes, and, with the left foot thus armed, press it firmly on the ground before taking my seat to operate. I find I then have a firm support, which gives me much additional confidence in making traction without the least fear of slipping. I have been so much pleased with the help I have thus derived, that I venture to think it may prove equally useful to others, and trust this may be accepted as my excuse for publishing it. ALEXANDER DUKE, Rotunda Hospital. (*British Medical Journal*, 1880).