Psychiatric Morbidity and the Menopause; Screening of General Population Sample

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Summary

A survey of 539 women from the general population indicated a high prevalence of minor psychiatric illness in women aged 40-55 years. There was evidence of an increase in psychiatric morbidity occurring before the menopause and lasting until about óne year after menstrual periods had ended. Vasomotor symptoms increased dramatically when periods stopped and persisted up to five years after the menopause. Both these features seemed to have a clear relation to the menopause but not the same relation. The findings suggested that further investigation of the relation between perimenopausal hormonal changes and psychiatric morbidity should be directed towards premenopausal women. Environmental factors, particularly in relation to children, seemed to be associated with increased psychiatric morbidity at this time of life.

Introduction

There has been much debate about the relation of psychiatric symptoms to the menopause and the use of oestrogen preparations to treat these symptoms. The standard psychiatric textbooks give little space to the discussion of the menopause. Slater and Roth[1] mention the menopause only briefly and conclude that life situation is probably more important than endocrine changes in producing psychiatric symptoms at this time of life.[1] Mitchell[2] considers that factors such as change in the maternal role, ageing of the mother, and death of the father may well contribute to psychiatric morbidity at this time. Jeffcoate[3] questioned the hormonal basis of psychiatric symptoms at the time of the menopause and argued against the use of oestrogens. Others,[4-6] however, considered that symptoms of depression, irritability, and emotional lability at the menopause were due to hormonal changes and should be treated with oestrogens. More recent surveys[7-9] indicate that vasomotor changes such as hot flushes and profuse sweating become common when menstrual periods stop, but other symptoms such as headaches, dizziness, palpitations, sleeplessness, and depression do not show the same clear temporal relation to the menopause.

The aim of this study was to screen a group of women from the general population aged 40-55 years for psychiatric illness and relate this to menstrual changes and those life events which are possible factors in the production of symptoms.

Method

A postal survey was made of all women aged 40-55 years of age on the lists of six general practitioners working from the same premises. The 60-item general health questionnaire (G.H.Q.)[10] was used for screening. The G.H.Q. was developed for the detection of psychiatric cases, particularly in general practice; it focuses on recent health and

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is thought to detect mainly depressive and neurotic illness. The G.H.Q. was scored according to the method recommended by Goldberg[10]: those women scoring above the cut-off point of 11 were considered to have psychiatric illness and are referred to as the "cases." A brief questionnaire about menstrual periods and the family situation was included with the G.H.Q.

Results

Of the 760 women approached 539 (71%) returned completed questionnaires. A total of 155 women (29%) had a score of 12 or more on the general health questionnaire and were identified as probable psychiatric cases. There was no significant variation in the proportion of psychiatric "cases" with social class or marital status.

Menopausal Status.—All women with regular periods were considered premenopausal (group 1). Those who had had no menstrual periods for three to 12 months were considered menopausal (group 2). The postmenopausal sample was divided into two groups: group 3 up to five years after menopause and group 4 six or more years after menopause. There were 228 women in group 1, 81 in group 2, 109 in group 3, and 84 in group 4. Twenty-nine women had had a hysterectomy and eight women did not give the relevant information. The proportion of psychiatric "cases" in each group is shown in fig. 1. The difference between group 2 and the rest was statistically significant ($\chi^2 = 8.02$; 3 D.F.; P<0.05).
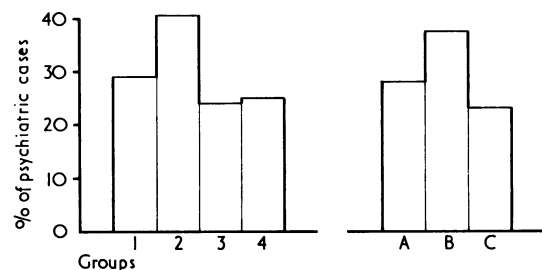

FIG. 1—Changes in psychiatric morbidity with menopausal status and age.

Age.—The women were placed in groups according to their age on 1 January 1974. Women of 40-44 years of age were termed group A, women of 45-49 years group B, and women of 50-54 years of age group C. There were 159 women in group A, 167 in group B, and 213 in group C. The proportion of psychiatric "cases" in each group is shown in fig. 1. The difference between group B and the rest was significant ($\chi^2 = 9.78$; 2 D.F.; P<0.01).

In the table the women who returned completed questionnaires were divided into subgroups according to both age and menopausal status. The difference in psychiatric morbidity between group 1A and group 1B was significant ($\chi^2 = 4.98$; 1 D.F.; P<0.05). The difference between 1B and 1C was not significant nor was the variation with age in groups 2, 3, and 4. Variation according to menopausal status was not significant in groups A, B, or C.

Vasomotor Phenomena.—The replies to question 9 of the questionnaire, "Have you recently been having hot or cold spells?" and question 10, "Have you recently been perspiring (sweating) a lot?" were looked at in relation to menopausal status and psychiatric state In fig. 2 "cases" and "non-cases" are shown separately. Among the "non-cases" there was a highly significant increase in the frequency of hot spells and amount of perspiring in groups 2 and 3. The pattern of change was much less clear for the "cases."

Parental Death.—Altogether 531 women gave information about their mothers and 514 about their fathers. There was no significant

Women Arranged in Subgroups according to Age and Menopausal Status. Percentage of "Cases" (Women with a Score of 12 or more) in Each Group is Shown

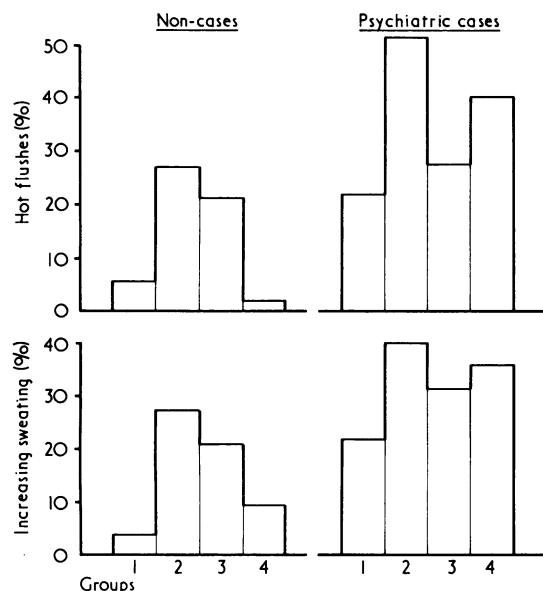| Groups	1		2		3		4	
	No. of Women	% Cases	No. of Women	% Cases	No. of Women	% Cases	No. of Women	% Cases
A	127	23·6	16	43	6	33	3	33
B	82	39 ·	36	47·2	32	·25	5	40
C	19	15·8	29	31	71	22·5	76	22·4

FIG. 2—Vasomotor symptoms in relation to menopause.

difference between the "cases" and the "non-cases" with regard to death of either parent.

Children.—The women identified as psychiatric "cases" generally had larger families—31% of the "non-cases" had three or more children compared with 45% of the "cases." (χ^2 = 9·06; 1 D.F.; P <0·01). Information about events relating to children—marriage, leaving home, and death—which occurred during the previous year was requested. Altogether 32·9% of the "cases" and 23·7% of the "non-cases" reported one or more of these events. This difference was just significant (χ^2 = 4·39; 1 D.F.; P <0·05).

Specific Family Problems.—All the women were asked to give brief details of any particular family problems they had had in the last year, and 45% of the "cases" and 22·9% of the "non-cases" volunteered information (χ^2 = 24·4; 1 D.F.; P <·001). The commonest source of problems seemed to be children (31·4%) followed by the husband (24·5%), self (21·1%), and parents (13·2%).

Complaints of Excessive Bleeding.—The women were all asked if their menstrual periods had been heavier than usual recently. In the premenopausal group 37 (22·7%) "non-cases" complained of heavier bleeding compared with 32 (49%) psychiatric "cases" (χ^2 = 14·17; 1 D.F.; P <0·001).

Discussion

Using the general health questionnaire 29% of 539 women from the general population aged 40-55 years were identified as psychiatric cases. This compares with 178 (33%) of 533 consecutive patients presenting at a general practice surgery[11] and 50% of 215 new patients aged 40-55 years of age at a gynaecological outpatient clinic (personal observation). This finding suggests there is a high incidence of depressive and anxiety symptoms in women of this age in the general population.

There was no evidence to suggest that death of a parent was significantly related to psychiatric morbidity, but, not surprisingly, ailing or "demanding" parents seemed to be a source of anxiety.

The changing pattern of relation with children was a factor associated with increased psychiatric morbidity. The psychiatric

cases tended to have larger families than the others and a child having recently married or left home was associated with increased psychiatric morbidity in the mother. It is possible, however, that psychiatric illness in the mother may be one of the factors which cause children to marry or leave home.

Problems about children were those most commonly mentioned when the women were given the opportunity to write about recent family problems and these varied from minor misbehaviour to trouble with the police and marital problems. Though the pattern of problems mentioned was the same for the cases and the non-cases, the cases reported them far more often. This may indicate that these problems are commoner in the families of psychiatric cases and may contribute to parental psychiatric illness. On the other hand the mother who is anxious or depressed is likely to take a more intense and pessimistic view of her child's behaviour and discover or magnify problems.

When psychiatric morbidity was looked at in relation to menopausal status there was a definite increase in psychiatric morbidity among menopausal women, though there was no excess in this group of those enviromental factors which seem to be associated with increased psychiatric morbidity.

There was a significant increase in psychiatric morbidity among women of 45-49 years of age. When age and menopausal status were considered together it was apparent that these two variables could not be clearly separated as most women aged 40-44 years are premenopausal and most women aged 50-54 years are postmenopausal.

Most of the increase in psychiatric morbidity in women aged 45-49 years was accounted for by an increase in the proportion of psychiatric cases in the premenopausal group. Many of these women were presumably close to the menopause as there is only a small proportion of premenopausal women after the age of 50. This seems to indicate that there is a rise in psychiatric morbidity before the menopause which does not persist beyond one year after the end of menstrual periods. This finding contrasts with those two features of the menopausal syndrome which are generally considered to be related to the fall in oestrogen level —the "flushes" and the "sweats." The non-cases showed a highly significant increase in these complaints in the menopausal group, and this was maintained for up to five years after the end of menstrual periods.

The psychiatric cases did not show such a clear-cut pattern in vasomotor symptoms, as these complaints are already common in the premenopausal group and remain so more than six years after the end of periods.

The difference in timing of the increase in psychiatric morbidity and the appearance of vasomotor symptoms would suggest that they are related to different aspects of the changes that occur before and after periods stop. Further investigation of possible hormonal or biochemical factors underlying the increased psychiatric morbidity in this age group should perhaps be directed towards premenopausal women. There is some evidence that hormonal changes occur before the end of menstruation. Adamopoulos *et al.*[12] showed that urinary luteinizing hormone levels were considerably raised in women approaching the menopause, though urinary oestrogen levels were normal, and they suggested that this indicated some disturbance of the feedback mechanism between the pituitary and the ovaries.

The increase in psychiatric morbidity just before the menopause may also be significant in relation to the problems of psychiatric morbidity after hysterectomy.[13] [14] A much higher proportion of cases than non-cases considered that their menstrual periods had been heavier than usual recently. Such a

considerable difference in the level of complaints about heavy bleeding suggests that women suffering from minor psychiatric illness are more likely to present as possible candidates for hysterectomy, and this may account, at least partly, for the excess psychiatric morbidity reported after hysterectomy.

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Sleep and Blood Pressure

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Summary

Direct arterial pressure was recorded continuously over 24 hours in 18 totally unrestricted people (six normotensives, four untreated hypertensives, and eight treated hypertensives). There was an almost equal fall of about 20% in both systolic and diastolic blood pressure during sleep in the three groups when compared with their waking pressures. This fall in pressure was greater than that observed previously in patients sleeping in a laboratory or hospital. Furthermore, it suggests that hypertensive subjects do not have a higher centrally-induced vasoactive component and that hypotensive drugs do not alter the pattern of blood pressure behaviour induced by sleep.

Introduction

Changes in the circulation during sleep have been investigated since Galen's time. The general picture that emerges[1-5] is that blood pressure falls during sleep, often profoundly, with the lowest pressures during the early part of sleep. In people with high blood pressure the absolute fall in pressure is even greater, while dreaming may be associated with transient increases and a much greater variability of pressure. Events within the central nervous system concurrent with the onset of sleep have been thought to be responsible for a greater fall in arterial pressure than can be accounted for by simple rest in the recumbent

position, since bradycardia and a fall in blood pressure follow closely on the disappearance of the alpha rhythm of the electroencephalograph (E.E.G.) during light sleep.

Studies on the cardiovascular changes during sleep have, with one exception,[6] been undertaken in laboratories or hospitals and, while all agree that arterial pressure falls, results have differed with regard to changes in heart rate, cardiac output, and total peripheral resistance.[4] [5] The degree of fall of arterial pressure during sleep reported has not been uniform. Bristow et al.[5] and Khatri and Freis[4] found that mean arterial pressure fell some 7-12% from waking levels in both normotensive and hypertensive patients, while Richardson et al.[3] noted a fall of about 19% in both systolic and diastolic pressure in normotensive people compared with a 12% fall in hypertensive patients. A similar discrepancy was noted by Bevan et al.[6] who found that systolic and diastolic pressures in untreated hypertensive patients fell by 5% and 2% respectively compared with 10% and 17% in normotensive people; furthermore, in four normotensive subjects who slept at home the fall was even greater, averaging 25% (systolic) and 30% (diastolic).

We report here the changes in arterial pressure during sleep which occurred in 18 people whose blood pressure was measured continuously over 24 hours and who all slept in their own homes.

Subjects and Methods

Eighteen patients were chosen from a group in whom direct arterial pressure, heart rate, and electrocardiogram were recorded continuously over 24 hours because they all slept at home and indicated that they had had a "normal" night's sleep. They gave their informed consent to the study. The methods used for measuring direct arterial pressure in unrestricted patients have been fully described elsewhere.[7] The patients were studied over 24 hours, from 9 a.m. to 9 a.m., during which they attended the laboratory only once for 15 minutes after 12 hours to service the perfusion chamber and calibrate the tape. Significant events were recorded simultaneously on tape and in a diary kept by the patient

Systolic and diastolic pressures were averaged over successive 30-minute periods throughout the 24 hours. The period of "sleep" was taken as the period from the mark on the tape when the patient indicated that he was in bed to that when he indicated that he was awake. No patient took night sedation, but eight with raised arterial pressure were on treatment (see table).

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