

regarding age related to medical diagnoses or other associated conditions. Survival was actually linked to having more arrests, chronic cardiac conditions, or certain types of arrhythmias. It might therefore be surmised that recovery from cardiac arrest is related to inherent resistance of the patient and the severity of underlying morbidity rather than to age. This gives additional support to our general hypothesis that survival into geriatric age is an indication of physical toughness rather than frailty (Linn, Linn, and Gurel, 1969). So-called "old age" is therefore not itself a contraindication to cardiac resuscitation or, for that matter, to any other kind of therapy.

We wish to thank Mrs. Isabel Neves, clinical research assistant, for her help in the compilation of data and preparation of the manuscript and the Emergency Resuscitation Committee at this hospital.

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Children's Hospital Admissions and Mother's Menstruation

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British Medical Journal, 1970, **2**, 27-28

Summary: Of 100 children's emergency admissions to hospital nearly half (49%) were admitted during the mother's paramenstruum. There was a statistically significant association between the mother's menstruation and the child's admission both for accidents and for illnesses. The eldest child in the family appeared to be most affected.

Introduction

The relation of minor ailments, especially coughs and colds, in children to the mother's menstruation has been demonstrated. Half of all children's attendances at one general practitioner's surgery occurred during the mother's paramenstruum. There were also reports of children whose recurrent coughs and colds coincided with mother's menstruation and occurred each month (Dalton, 1960, 1966). This survey was undertaken to ascertain whether there was a correlation between the mother's menstruation and any illness or accident of sufficient severity to require her child's emergency admission to hospital.

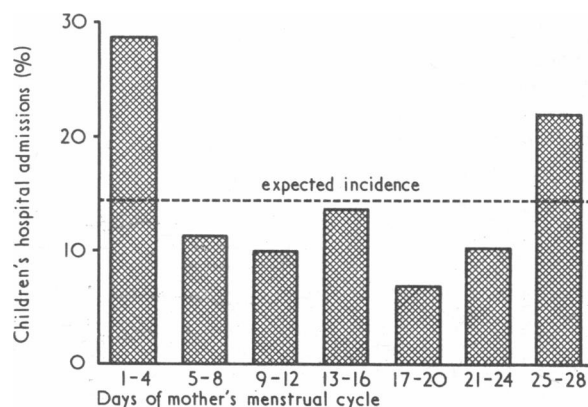
Methods

Mothers of children admitted as emergencies to the children's ward (30 beds) of a general hospital in North London were interviewed when they were visiting their children. Particulars were obtained of the mothers' age, parity, type of pregnancy, and puerperium, also the length of their menstrual cycle, duration of menstrual loss, presence of premenstrual symptoms or dysmenorrhoea, and, finally, the date of their last menstruation. A calendar was available to verify that the date of the last menstruation coincided with the stated day of the week. As a full medical history was taken from every mother it was unlikely that any of them realized that the prime purpose of the interview was to ascertain the date of menstruation. The answers could therefore be considered reliable, bias being reduced to a minimum.

Results

Of 100 mothers interviewed 18 had amenorrhoea exceeding 28 days (amenorrhoea up to 35 days, confirmed pregnancy 2, puerperium 7, menopause 1, hysterectomy 1, unable to re-

member 2). The other 82 were menstruating regularly with a cycle of 21 to 35 days; indeed, 62 mothers claimed a regular 28-day cycle. Their child's admission had occurred when 23 mothers (28%) were in their first four days of menstruation and when 17 (21%) were expecting their menstruation within four days (see Chart). Thus nearly half (49%) of the



Children's hospital admissions and mother's menstrual cycle.

children's admissions occurred during the mother's paramenstruum (premenstruum and early menstruation) at a time when she might be influenced by premenstrual tension. These rates should be compared with the expected incidence of 14% in one of the seven four-day phases of the menstrual cycle. The probability of such a distribution occurring by chance is less than 1 in 1,000 ($\chi^2=16.5$ on 1 D.F.) and therefore suggests that the association between the mother's menstruation and the child's admission is highly significant.

The two women unable to remember their menstrual dates were not menstruating, but may have been either in their intermenstruum or premenstruum. If they had been allocated to the intermenstruum the results would not have been appreciably altered and would not have affected the significance of the results obtained. The five women with amenorrhoea between 29 and 35 days were either in their premenstruum or were in early pregnancy. Mothers who were in their fifth or sixth day of menstruation and still having a menstrual loss were classified under days 5-8. These mothers would have passed their days of heaviest menstrual loss and the time of premenstrual tension.

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Of the 26 admissions as a result of an accident 62% occurred during the mother's paramenstruum ($\chi^2=13.0$), and of the children's admissions for an illness, 43% were during the mother's paramenstruum ($\chi^2=5.6$); both are statistically significant findings (see Table).

There were no significant differences among the children admitted during their mothers' paramenstruum in respect of age, sex, or family size. There was, however, a difference in respect of family position, the eldest child (73%) being most frequently admitted during his mother's paramenstruum, compared with the middle child 50%, only child 47%, and youngest child 39% (see Table). This finding differs from that

Children's Admissions in Mother's Paramenstruum

	Admissions During Paramenstruum		Total Admissions	χ^2 on 1 D.F.	Probability
	No.	%			
All admissions . .	40	49	82	16.5	0.001
Accidents . .	16	62	26	13.0	0.001
Illness . .	24	43	56	5.6	0.025
Eldest child . .	11	73	15	16.6	0.001
Only child . .	9	47	19	3.3	N.S.

of the survey in general practice, where the only child was the one most vulnerable during his mother's paramenstruum.

Analysis showed that the distribution of children admitted during the mother's paramenstruum was similar in respect of mother's age, incidence of toxæmia, puerperal depression, premenstrual symptoms, dysmenorrhoea, and duration of menstrual loss. Eight mothers stated that their menstrual cycles normally exceeded 30 days, and seven of these had their children admitted during their paramenstruum. Of 10 women on oral contraceptives, six had children admitted in the paramenstruum. These findings are interesting in view of the knowledge that premenstrual tension is usually most pronounced among those with long menstrual cycles and is often increased in intensity in women on oral contraceptives.

Discussion

No attempt was made to confirm that menstruation actually occurred in those mothers expecting menstruation within four days. It is recognized that stress can alter the length of the menstrual cycle, and an analysis of the effect of menstruation on schoolgirls' "O" level examinations showed that the stress of the examinations was capable of varying the length of the menstrual cycle. Of these 91 girls, 42% had an altered cycle. The number of lengthened or shortened cycles, or completely missed menstruations, was about equal (Dalton, 1968). It is reasonable to assume that the mother's stress at the child's admission would produce a similar variation in the menstrual cycle. Admittedly the schoolgirls' stress was prolonged and anticipatory, whereas the mothers' was a sudden catastrophic one.

Among women half of the accident admissions were found to have occurred during their paramenstruum (Dalton, 1960), and in this survey a similar number of children's accident admissions occurred during their mothers' paramenstruum. It would seem that if a woman is accident prone and more liable to scald herself with a boiling kettle during her paramen-

struum it is equally likely that the child will be scalded if he is in the vicinity. Again, if the mother's reaction time is slowed during her paramenstruum she is less able to take the necessary action to protect her child from injury, or if her judgement is reduced she may not so readily appreciate the risks of an accident occurring. These findings suggest that with accident-prone children it is necessary to consider the possibility of the mother being a causative factor.

The studies by Maclean (1956), Buck and Laughton (1959), and Wolff and Acton (1968) have all suggested that children's illnesses increase if the mother is suffering from minor psychiatric or physical ill-health. This study suggests that even the temporary phase of ill-health experienced by mothers during the paramenstruum can increase the incidence of children's illnesses.

There seemed to be an increase in psychosomatic illnesses during the paramenstruum—for example, five out of eight cases of asthma were admitted at such a time. A 4-year-old girl was admitted twice with asthma, on both occasions during her mother's paramenstruum. On both occasions the mother stated that she suffered from premenstrual tension and irritability. She agreed that her daughter's attacks were brought on by emotion, and stated that the onset of her child's illness had occurred at the age of 2 years, when she had separated from her husband.

Carne (1966) observed that a vomiting baby may be a symptom of the mother's depression. He was referring to puerperal depression and a young baby, but of 12 children aged 5 to 12 years under observation for vomiting and abdominal pain, seven were admitted while the mother was in the throes of paramenstrual depression.

Another factor may be the impatience of the mother or her inability to accept further responsibility when she herself is in her paramenstruum. Thus one mother attended the casualty department with a child who had a six-week history of admitted during their mothers' paramenstruum in respect of disease. Did the mother's paramenstruum affect the timing of her attendance?

The severity of a child's clinical condition is not the only factor determining admission. The child of a distressed or harassed mother may be admitted, while another child whose clinical condition is of similar severity may be sent home under the observant eye of a calm and reliable mother.

It is already recognized that no woman's case history is complete unless it includes the date of her last menstrual period. This study would suggest that information regarding the phase of the mother's menstrual cycle is also vital in all types of children's accidents and illnesses.

I am indebted to Dr. Ian Wickes and the staff of John Gilpin Ward of the North Middlesex Hospital for permission and help in carrying out this investigation.

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