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Cancers coinciding with childbearing: delayed diagnosis during pregnancy?

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Cancers associated with childbearing pose extremely difficult questions for the patient and her physician. Population based registry data gave us the opportunity to examine the incidence of this uncommon occurrence.

Subjects, methods, and results

Cases were identified following a linkage between the Swedish Cancer Registry and a nationwide fertility registry. Nearly all diagnosed cancers are recorded in the cancer registry.¹ The fertility registry contains information on number and dates of live births for more than 2.3 million Swedish women born in 1925 and thereafter.²

Among women born from 1925 to 1972 more than 2.7 million live births and 32 848 cancers were recorded during reproductive ages (15-44 years) in 1960-90. Of all cancers, 428 (1.3%) were diagnosed during pregnancy (date of a live birth-9 months) and 1425 (4.3%) during the lactation period (date of birth+12 months). The overall incidences during pregnancy and lactation, respectively, were 15.6 and 51.6 per 100 000 live births.

Median age at diagnosis during pregnancy was 29.8 years. The most frequent sites were skin (malignant melanoma; 3.6 per 100 000 live births), cervix uteri (2.4 per 100 000), and breast (2.0 per 100 000). About 4% of breast cancers and 10% of thyroid cancers during reproductive years were diagnosed during pregnancy or in the year after birth. The corresponding figures in the age group 25-29, when childbearing was most frequent, were 19% and 21%, respectively.

Expected numbers during pregnancy and lactation were estimated from female age specific and period

specific population rates. The observed to expected ratios during pregnancy were below unity for all of the 10 most common sites except melanoma. For all sites combined the observed to expected ratio was 0.4(9) [0.4(4)-0.5(3)]. For sites where case interval numbers indicated a deficit of recorded cases in early pregnancy (cervix uteri, breast, ovary, Hodgkin's disease, leukaemias), ratios were also computed based on observed numbers in trimester 3. During the lactation period the observed to expected ratio for all sites combined was 1.2(1) [1.1(5)-1.2(8)].

Comment

Our findings are in broad agreement with a previous population based study that observed fewer than expected cancers during pregnancy.³ Our data indicate that a small, but not negligible, proportion of all malignancies in young women are diagnosed in association with childbearing. More importantly, the estimated observed to expected ratios suggest that diagnosis is delayed to the postpartum period. Pregnancy is usually a period of intense medical observation. However, potentially harmful diagnostic procedures are probably less likely to be implemented. Moreover, unusual signs and symptoms may be interpreted as being related to pregnancy. Given the physiological changes in the breast during childbearing this may be most evident for breast cancer; longer delays in pregnant compared with non-pregnant subjects have been reported.⁴ In our data, fewer cases of breast cancer were diagnosed in the first half than in the second half of the lactation period.

An alternative explanation, but not mutually exclusive, is that tumour progression is altered during pregnancy and lactation. The growth of malignant cells, present before conception, may be stimulated by transient hormonal⁵ and perhaps immunological changes during childbearing.

A limitation of our data was the lack of information on terminated pregnancies, which may have reduced the number of registered cases in the first and second

Ten most common sites of cancers coinciding with childbearing: observed (O) and expected (E) numbers and ratios (and 95% confidence intervals) of these sites during pregnancy (trimesters 1-3) and lactation. Expected numbers based on general female population rates

ICD-7 No	Site	During pregnancy*						Lactation period*		
		No of cases						No of cases		
		1‡	Observed 2‡	3‡	Total	Expected	Observed: expected (95% confidence interval)	Observed (first half + second half)	Expected	Observed: expected (95% confidence interval)
190	Melanoma	26	35	39	100	90.3	1.11 (0.88 to 1.32)	171 (92+79)	120.5	1.42 (1.21 to 1.63)
171	Cervix uteri	15	16	34	65	158.0	0.41 (0.31 to 0.51)	213 (121+92)	210.7	1.01 (0.88 to 1.15)
	Cervix uteri-adjusted†				102	158.0	0.65 (0.52 to 0.77)			
170	Breast	4	13	38	55	156.5	0.35 (0.26 to 0.44)	248 (89+159)	208.6	1.19 (1.04 to 1.34)
	Breast-adjusted†				114	156.5	0.73 (0.59 to 0.85)			
193	Nervous system	12	10	10	32	71.7	0.45 (0.29 to 0.60)	129 (66+63)	95.6	1.35 (1.12 to 1.58)
175	Ovary	1	8	18	27	62.6	0.43 (0.27 to 0.59)	70 (35+35)	83.4	0.84 (0.64 to 0.96)
	Ovary-adjusted†				54	62.6	0.86 (0.63 to 1.09)			
153	Colon	6	10	8	24	31.9	0.75 (0.43 to 1.05)	57 (27+30)	42.3	1.35 (1.00 to 1.70)
195	Endocrine glands	7	9	4	20	33.2	0.60 (0.34 to 0.87)	46 (20+26)	44.2	1.04 (0.68 to 1.24)
201	Hodgkin's disease	3	6	8	17	31.2	0.54 (0.29 to 0.80)	58 (29+29)	41.7	1.40 (1.03 to 1.75)
	Hodgkin's-adjusted†				24	31.2	0.77 (0.46 to 1.07)			
194	Thyroid	10	3	4	17	50.0	0.34 (0.18 to 0.50)	118 (54+64)	66.7	1.77 (1.44 to 2.08)
204-208	Leukaemia	0	1	8	9	29.1	0.31 (0.11 to 0.49)	39 (16+23)	38.7	1.01 (0.23 to 1.22)
	Leukaemia-adjusted†				24	29.1	0.82 (0.49 to 1.15)			
140-209	All sites	94	130	204	428	880.7	0.49 (0.44 to 0.53)	1425 (714+711)	1174.2	1.21 (1.15 to 1.28)

*Pregnancy period: date of delivery-9 months; lactation period: following 12 months.

†Because of possible underreporting of cases in trimesters 1 and 2 owing to induced abortions following diagnosis, O:E ratios were also calculated based on observed numbers in trimester 3—for example, breast cancer 38 (number of cases observed in trimester 3)×3=114.

‡Trimester.

trimesters. The practice of therapeutic abortions in association with malignant disease has varied according to site, stage, type of treatments available, time, and period of diagnosis. The only site where organised screening activities may have affected results is the cervix. Smear testing practices in early pregnancy have varied over time.

Our findings may have implications for maternity care policies. Gestational cancer is likely to become more common as women in many Western countries postpone childbearing to an older age. Better awareness among doctors, coupled with an increased readiness to evaluate unusual symptoms, may help avoid undue delay in diagnosis in this special group of patients.

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Correction

Cost effectiveness of antenatal screening for cystic fibrosis

An authors' error occurred in this paper by H S Cuckle and colleagues (2 December, pp 1460-4). The last sentence of the second paragraph of the results should have read: "Unless the rate is more than 10% higher the incremental [not marginal] cost will exceed £100 000."

MISCELLANEOUS

Air sickness

It may have given much pleasure to members of the Dukeries Gliding Club last September to see one of their new recruits, and a doctor at that, mopping out the front seat of a K7 glider after violent motion sickness. It was certainly humbling for me. I gather sick bags and air fresheners are now standard equipment "by order of the chief flying instructor" whose expert tuition on spins at the end of a turbulent 30 minute flight with me put on look out duties led to the inevitable vomiting.

It was only my third soaring flight. I had first noticed a feeling of light headedness and restlessness. I had also started with a sighing pattern to my breathing. I must also admit to some anxiety generated by my responsibility to "keep a good look out" as several gliders shared our thermal while the glider was being thrown about by quite severe turbulence; it was a good thermal. Already several textbook predisposing factors were in place: turbulence precipitated hyperventilation and anxiety in a novice pilot.

Determined to learn as much from the flight as possible I mistakenly agreed on the way back to the airfield to my instructor using up our still good altitude with stall and spin demonstrations—he did ask if I was up to it. I was by now feeling a little warm and flatulent but said yes. It was a mighty fine spin but I had not a clue what was happening. As we came out of the spin my cheeks sucked in; I could cope no more. As the instructor said, "You can take the controls," I suggested perhaps it was not such a good idea.

Some textbook symptoms of air sickness I did not experience are apparently sweating, frontal headache, depression, and drowsiness. It also seems in military aviation that motion sickness is a real problem with a significant proportion of trainee air crew failing or requiring prolonged training as a result of it. Little can be done with medication but the problem usually becomes less with time. Happily that seems to be so in my case.—RICHARD MANN is a general practitioner in Nottingham