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Seasonal variation in deep vein thrombosis

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In many temperate countries coronary events and stroke, as well as related deaths, are more common in winter than in summer.¹ Fatal pulmonary embolism has also been reported more often in winter.^{2,3} This might be linked to changes in coagulation factors⁴ and to peripheral vasoconstriction, leading to reduced blood flow in the legs.⁵ Alternatively, venous stasis due to vasodilatation is greatest in summer. These uncertainties prompted us to study the seasonal distribution of deep vein thrombosis of the legs by reviewing the month of presentation of all patients with this diagnosis referred to our vascular laboratory over six years.

Subjects, methods, and results

All files coded as "suspected" deep vein thrombosis (n=7303, mean (SD) age 63 (19), 58% women, 85% medical patients) or "confirmed" deep vein thrombosis (n=1905, age 65 (20), 54% women, 83% medical patients) were selected from the database of our vascular laboratory over the period 1989-94. Diagnosis was made by a combination of continuous wave Doppler and venous occlusion plethysmography or, from 1992, by B mode venous compression ultrasonography. Inconsistency of the extracted data was found in only seven out of 300 cases (2.3%) by comparison with randomly selected original charts.

The monthly number of confirmed events over the six year period ranged from 27 to 37 in January, 13-29 in February, 23-33 in March, 16-29 in April, 16-38 in May, 20-36 in June, 14-39 in July, 18-40 in August, 24-32 in September, 22-32 in October, 21-31 in November, and 24-37 in December. The monthly variation was similar for suspected events. The figure shows the number of suspected and confirmed events by season over the six years studied, with seasons defined as follows: winter (December, January, February); spring (March, April, May); summer (June, July, August); autumn (September, October, November). Time series analysis with the moving average technique did not suggest any regular or irregular variation in the occurrence of the events. In addition, no differences were found for the monthly or seasonal distribution of the suspected events (Kruskal-

Wallis, $P=0.43$ and 0.99 , respectively) or confirmed events ($P=0.27$ and 0.14 , respectively).

Comment

This survey shows that in Geneva, a city with a continental climate and quite wide temperature differences between summer and winter, there is no seasonal variation in the incidence of suspected and confirmed deep vein thromboses. This conclusion is based on a large population and a long period.

Fig 1—Number of suspected and confirmed deep vein thromboses related to seasons during 1989-94 in Geneva

Two previous reports had suggested an increased incidence in winter of fatal pulmonary embolism after total hip arthroplasty² or among subjects who died suddenly,³ but the conclusions were derived from small numbers of events. Moreover, other confounding factors might theoretically be responsible for an increased incidence of fatal pulmonary embolism in winter. Although the embolic source, leg thrombosis, is no more frequent, winter related comorbidities might contribute to a reduced tolerance to small emboli.

Our survey has limitations. Firstly, it is retrospective, but the data used were all registered prospectively and their quality was ascertained in a randomly selected sample. Secondly, the diagnosis was not made by means of venography in most cases, but objective, non-invasive diagnostic means with recognised diagnostic performances were used. Moreover, if we extrapolate our 318 yearly events to the 380 000 inhabitants of Geneva, the yearly incidence of confirmed thromboses was eight per 10 000, similar to the

five per 10 000 found in population based studies. Lastly, we found no seasonal variations in the number of suspected cases of deep vein thrombosis, a condition which is not dependent on a diagnostic procedure.

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Concerns about AIDS in general practice

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General practitioners are regarded as well placed to help prevent the transmission of HIV infection.¹⁻³ In 1988 a study was started in the Netherlands to get more information on concerns about AIDS among the non-infected population and on the general practitioner's role in providing advice and health education about AIDS. In this paper we present the results after five years (April 1988-April 1993).

Subjects, methods, and results

Since April 1988 general practitioners participating in the Dutch sentinel practice network recorded all face to face consultations with non-infected patients in which the subject of AIDS was brought up, either by the patient or by the general practitioner. When the subject of AIDS was a substantial part of the consultation, the general practitioners filled in a questionnaire giving information on the contents of this HIV related consultation and on the patient. If an arrangement for HIV testing was made the result of the test was recorded on a separate form.

The Dutch sentinel practice network (45 general practices, 62 practitioners) is a national network that can be regarded as representative of Dutch general practice. It covers about 1% of the Dutch population.^{4,5} The participating general practitioners collect data on different topics every year. In the process of data

collection several checks are built in to ensure a representative and valid database.

A total of 1082 HIV related consultations were recorded, of which 890 (82%) were first HIV related consultations. To make allowances for differences in the size of the practice populations, the number of HIV related consultations was calculated per 10 000 patients. For trend analysis the numbers of HIV related consultations (per 10 000 patients) were aggregated per three month period according to degree of urbanisation and geographical area. Changes in the size of the total patient population over time and the effect of seasonal variation were accounted for. A stepwise linear regression analysis was applied. For associations a χ^2 test was used. All statistics were tested with α of 0.05.

In the five years of the study an average of 17 HIV related consultations per 10 000 patients a year (range 0 to 57 per 10 000) were recorded in Dutch general practice. A time trend analysis (fig 1) showed a significant increase in the number of HIV related consultations over time: from 14.4 (95% confidence interval 14.1 to 14.7) to 24.6 (24.3 to 24.9) per 10 000. The decrease in the number of these consultations in rural areas (from 5.7 (95% confidence interval 5.3 to 6.1) to 3.0 (2.6 to 3.3) per 10 000) was in contrast with this growing trend. A time trend analysis of only first HIV related consultations showed similar trends as the analysis of all HIV related consultations.

The possibility of HIV testing (67%: 723/1082) was by far the most important topic of conversation. Time trend analysis showed that HIV testing became even more important over the five years (rising from 57% to 75%). For 85% (626/723) of the tests requested an arrangement for testing was made, the "need for reassurance" being the commonest reason (76%: 478/626). In 1% (5/573) of the tests actually performed the result was HIV positive.

Only in 6% (21/335) of the consultations in which concerns about physical complaints in relation to HIV (32%: 335/1082) were discussed did the general practitioner share his or her patient's anxiety. Men and women differed strikingly in their concerns about the possible hazards of sexual contacts. Women (32%: 166/527) more often than men (18%: 99/555) were worried about regular sexual contacts ($\chi^2=27.28$, $df=1$, $P<0.001$). General practitioners took the initiative to talk about HIV infection in only 4% of the contacts recorded. The initiative was taken more frequently in combination with the general practitioner observing potentially HIV related physical complaints: 29% (14/48) versus 3% (29/1034) ($\chi^2=48.17$, $df=1$, $P<0.001$).

Fig 1—Number of HIV related consultations per 10 000 patients by degree of urbanisation (quarterly data points and trend lines)