

Physical abuse in pregnancy

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Objectives: To determine the prevalence of physical abuse during late pregnancy and to investigate how abused and nonabused pregnant women differ in demographic characteristics, health habits, psychologic distress and attitudes about fetal health.

Design: Survey of women attending for prenatal health care or admitted to hospital for delivery. The information was obtained on one occasion from self-report questionnaires, completed with the option of anonymity.

Settings: Community-based prenatal clinic, private obstetricians' offices in a large city, private family physicians' offices in a large city, family physicians' offices in a small town, and a university teaching hospital.

Patients: English-speaking women at 20 weeks' or more gestation attending or admitted consecutively.

Interventions: Three self-report questionnaires: the General Health Questionnaire (GHQ), the Fetal Health Locus of Control (FHLC) and the study questionnaire.

Results: Thirteen women (2.4%) refused to participate in the survey. Of the 548 women who completed the questionnaires 36 (6.6%) reported physical abuse during the current pregnancy and 60 (10.9%) before it. There were no significant differences in rates of abuse between settings. Of the women abused during the pregnancy 23 (63.9%) reported increased abuse during the pregnancy, and 28 (77.8%) remained with the abuser. Twenty-four pregnant women (66.7%) received medical treatment for abuse, but only 1 (2.8%) told her prenatal care provider of the abuse. Factor analysis revealed three factors associated with physical abuse in pregnancy: "social instability" (comprising low age, unmarried status, lower level of education, unemployment and unplanned pregnancy), "unhealthy lifestyle" (comprising poor diet, alcohol use, illicit drug use and emotional problems) and "physical health problems" (comprising health problems and prescription drug use). The GHQ scores showed that the abused women were significantly more emotionally distressed than the nonabused women ($p < 0.001$). The FHLC scores showed that the abused women believed they had little "internal control" over the health of their fetuses and that "chance" played the most important role in the outcome of their pregnancy ($p < 0.001$).

Conclusions: Abused pregnant patients are a frequently undetected high-risk group. Prenatal care should include a routine screening question about domestic violence, and identified patients should be appropriately counselled and referred.

Objectifs : Déterminer la prévalence des abus physiques vers la fin de la grossesse et analyser les différences entre les femmes enceintes victimes d'abus et les non-victimes en ce qui a trait aux aspects suivants : caractéristiques démographiques, habitudes de santé, troubles psychologiques et attitudes au sujet de la santé du fœtus.

Conception : Enquête auprès de femmes en traitement ou hospitalisées pour accoucher. On a

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réuni les renseignements à l'aide d'un questionnaire rempli par les répondantes qui avaient le choix de demeurer anonymes.

Contextes : Clinique prénatale communautaire, cabinets privés d'obstétriciens dans une grande ville, cabinets privés de médecins de famille dans une grande ville, cabinets de médecins de famille dans une petite ville et hôpital d'enseignement universitaire.

Patientes : Femmes anglophones enceintes de 20 semaines ou plus en consultation ou admises par la suite.

Interventions : Trois questionnaires remplis par l'intéressée : le General Health Questionnaire (GHQ), le Fetal Health Locus of Control (FHLC) et le questionnaire d'étude.

Résultats : Treize femmes (2,4 %) ont refusé de participer à l'enquête. Parmi les 548 femmes qui ont rempli le questionnaire, 36 (6,6 %) ont signalé avoir été victimes d'abus physiques pendant la grossesse en cours et 60 (10,9 %) avant celle-ci. Il n'y avait pas d'écarts importants au niveau des taux d'abus entre les contextes. Parmi les femmes victimes d'abus au cours de la grossesse, 23 (63,9 %) ont déclaré avoir été victimes d'abus accrus au cours de la grossesse et 28 (77,8 %) sont demeurées avec l'agresseur. Vingt-quatre femmes enceintes (66,7 %) ont reçu des soins médicaux à la suite d'abus, mais une seulement (2,8 %) a avoué avoir été victime d'abus à son fournisseur de soins prénataux. L'analyse factorielle a révélé trois facteurs liés aux abus physiques au cours de la grossesse : l'«instabilité sociale» (jeune âge, célibat, peu d'instruction, chômage et grossesse imprévue), un «mode de vie malsain» (mauvais régime alimentaire, consommation d'alcool, consommation de drogues illicites et problèmes affectifs) et les «problèmes de santé physique» (problèmes de santé et usage de médicaments prescrits). Les résultats du GHQ ont révélé que les femmes victimes d'abus souffrent beaucoup plus de troubles affectifs que les autres ($p < 0,001$). Les résultats du FHLC révèlent que les femmes victimes d'abus croient avoir peu de «contrôle interne» sur la santé de leur fœtus et que la «chance» a joué le rôle le plus important dans l'issue de leur grossesse ($p < 0,001$).

Conclusions : Les patientes enceintes victimes d'abus constituent souvent un groupe à grand risque que l'on oublie. Les soins prénataux devraient inclure une question de dépistage de routine sur la violence familiale et les patientes repérées devraient recevoir des conseils et un aiguillage appropriés.

Domestic abuse has been conservatively estimated to occur in about 10% to 20% of spousal relationships in North America, the figures depending on the definition of abuse and the characteristics of the sample surveyed.¹⁻¹⁰ Pregnancy has been postulated to be a time of increased risk for abuse because of ambivalent feelings about the pregnancy, the increased vulnerability of the woman, mounting economic pressures and decreased sexual availability.⁹ US investigators have recently found prevalence rates of abuse during pregnancy of 4% to 17% in samples of various sizes from diverse locations.¹¹⁻¹⁶ These studies have suggested that abuse in pregnancy is more frequent among teenagers, unmarried women and substance abusers¹⁴⁻¹⁹ and is associated with increased risk to the fetus.^{13,20}

Because the extent of physical abuse in pregnancy is unknown in Canada we conducted a study to determine the prevalence in a sample of pregnant women in Ontario and to investigate the aspects in which abused and nonabused pregnant women differ.

Methods

The sample

English-speaking women at 20 weeks' or more gestation were selected consecutively from (a) a commu-

nity-based prenatal clinic serving a poor neighbourhood, (b) obstetricians' and (c) family physicians' offices serving a wide range of "private" prenatal patients throughout Metropolitan Toronto, (d) family physicians' offices in small Ontario towns and (e) a university teaching hospital when admitted for delivery (if they had not been surveyed for this study earlier in the pregnancy).

Data collection

The women were approached by a health care worker and given information about the proposed survey. Women who signed the study consent form were given a package of questionnaires to fill out in a private place at that visit or admission and were advised that disclosure of their name was optional. Completed questionnaires were sealed and returned to a collection box or an identified health care worker.

Instruments

The survey package, rated at a grade 6 reading level, consisted of three questionnaires: the study questionnaire, the General Health Questionnaire (GHQ)²¹ and the Fetal Health Locus of Control (FHLC).²² The study questionnaire included questions on sociodemographic aspects, educational level, past physical and psychologic health, the partner, number of pregnancies and whether

this pregnancy was planned. Additional information was requested about diet and the use of cigarettes, alcohol, prescription and nonprescription drugs, and illicit drugs during the pregnancy. Women were asked 12 questions about abuse, including whether they had been physically abused (hit, choked, slapped, punched, kicked, injured with a weapon or other object, or otherwise injured) before the pregnancy, whether they had been abused during the current pregnancy, the nature and body location of the abuse, whether they had received medical treatment for the abuse, changes in abuse during the pregnancy, their relationship with the abuser, whether they were still with the abuser and whether they knew of available legal and social services for abused women. Questions were also asked about psychologic and verbal abuse and threats to safety.

The GHQ of Goldberg²¹ is a widely used, valid and reliable indicator of psychologic distress and a predictor of meeting psychiatric case criteria ("caseness"). It has previously been used in studies of battered women.²³ The 12-item version does not include physical symptoms that are likely to be worsened by pregnancy and is thus a useful instrument in pregnant patients. The FHLC of Labs and Wurtele²² is an 18-item instrument that has three scales — "internal control," "powerful others" and "chance" — corresponding with women's perceptions of how the health of their fetus is determined. These scales have been found to be strongly correlated with various attitudes and risk-taking behaviours of women during pregnancy. The FHLC was derived from the Multi-dimensional Health Locus of Control (MHLC)²⁴ of Wallston, Wallston and DeVellis and has been shown to be more reliable and valid than the MHLC in pregnant patients.

Statistical analysis

The analysis was done with the Statistical Pack-

age for the Social Sciences (version 4.0, SPSS Inc., Chicago). First, factor analysis (varimax rotation — a statistical technique used to distribute the variance more equally among the factors) was done on the background variables; the factor scores were then used to "predict" abuse status. Scores of abused and nonabused women on the FHLC scale were compared by multivariate analysis of variance (MANOVA) to control for multiple testing. Relative risks with 95% confidence intervals were computed for discrete variables occurring within each sample selected for analysis.

Results

Sample characteristics

There were 548 questionnaires completed and returned. About equal numbers of women were enrolled at the five sites: 115 at community prenatal clinics, 125 at private obstetricians' offices in Toronto, 102 at private family physicians' offices in Toronto, 100 at family physicians' offices in small towns and 106 at the teaching hospital. Thirteen (2.4%) women refused to participate in the survey. The mean age of the participating women was 29 (SD = 5.3, range 14 to 46) years and the mean duration of gestation was 30 (SD = 8.0, range 20 to 42) weeks. Sixty women (10.9%) reported domestic physical abuse before the current pregnancy. Further information about nonabused and abused women is shown in Table 1.

Characteristics of abused women

Thirty-six (6.6%) of the women reported physical abuse during the current pregnancy. Their mean age was 22.6 (SD = 6.8, range 14 to 40) years. There were no significant differences in rates of abuse according to site of recruitment or country of birth (Canada v. another

Table 1: Characteristics of nonabused and physically abused prenatal patients

Characteristic	Group; no. (and %) of patients		p value*
	Nonabused (n = 512)	Abused (n = 36)	
Unmarried	69/503 (13.7)	35/36 (97.2)	≤ 0.001
Failed to complete high school	41/488 (8.4)	25/33 (75.8)	≤ 0.001
Born in Canada	275/496 (55.4)	21/35 (60.0)	NS
Unemployed or receiving social assistance	133/498 (26.7)	27/35 (77.1)	≤ 0.001
Pregnancy unplanned	151/503 (30.0)	32/36 (88.9)	≤ 0.001
Regularly smokes cigarettes	63/506 (12.5)	26/36 (72.2)	≤ 0.001
Regularly drinks alcohol	83/430 (19.3)	23/33 (69.7)	≤ 0.001
Uses illicit drugs	6/501 (1.2)	20/36 (55.6)	≤ 0.001
Unhealthy diet	31/499 (6.2)	10/36 (27.8)	≤ 0.001
Previous emotional problem	19/499 (3.8)	22/36 (61.1)	≤ 0.001
Aware of abuse services	245/416 (58.9)	18/34 (52.9)	NS

*The χ^2 test was used to compare the figures. NS = not significant.

country). Further information about the abused pregnant women is shown in Table 2. Of the abusers, 21 (58.3%) were common-law or legal husbands, 3 (8.3%) were ex-husbands, 11 (30.6%) were boyfriends or ex-boyfriends, and 1 (2.8%) was the father of a teenage girl. Only one patient told her prenatal health care provider of the current abuse.

The commonest area struck during pregnancy was the abdomen (63.9%), followed in frequency by the buttocks (13.9%), head and neck (11.1%) and extremities (11.1%). Twenty-four (66.7%) of the women were struck on more than one body part. The injuries reported included pneumothorax, stab wound, concussion, fractures, perforated eardrums, abrasions, dental injuries, bruises, vaginal bleeding and premature labour.

Abused women were significantly different ($p \leq 0.001$) from nonabused women in several ways: they tended to be younger, to be unmarried, to have failed to

complete high school, to be unemployed, to be more emotionally distressed, to have had unplanned pregnancies, to have an unhealthy diet, and to have smoked, drunk and used more prescribed, unprescribed and illicit drugs during the pregnancy (Table 1). Table 3 shows the relative risks for these variables.

A factor analysis was done on the background or "etiologic" variables. After eliminating variables that did not contribute to the factor structure we found that there were three meaningful factors, which accounted for 45.1% of the variance. We labelled the first factor "social instability" (it comprised low age, unmarried status, lower level of education, unemployment and unplanned pregnancy), the second "unhealthy lifestyle" (poor diet, alcohol use, illicit drug use and emotional problems) and the third "physical health problems" (physical health problems and prescription drug use). We then used the factor scores to predict abuse status with a logistic regression equation. The base rate of nonabuse was 93.2% in the group of subjects for whom there were complete data for this analysis. The use of all three factor scores increased the rate to 97.5%. As would be expected, the three factors entered into the equation in order. The overall χ^2 value for the model was 104.8 with 2 degrees of freedom (df) ($p \leq 0.0001$).

Abused pregnant women had significantly higher scores on the GHQ, which indicated greater psychologic distress and psychiatric "caseness" than in nonabused women ($t = 9.56$, $df = 522$, $p = 0.001$). Abused women were 2.13 times more likely than nonabused women to meet the GHQ criteria for case status (95% confidence interval = 1.90 to 2.37).

The MANOVA indicated that the groups differed overall on the FHLC scales. Posthoc tests showed that the differences occurred on the "internal control" and "chance" scales but not on the "powerful other" scale. Thus, abused women were more likely than nonabused

Table 2: Additional characteristics of the physically abused prenatal patients

Characteristic	No. (and %) of patients
Psychologically or verbally abused as well	31 (86.1)
Experiences threats to safety	17 (47.2)
Still in relationship with abuser	28 (77.8)
Received medical treatment for abuse	24 (66.7)
Physically abused before current pregnancy	31 (86.1)
Level of abuse during current pregnancy	
More than before	23 (63.9)
As much as before	11 (30.6)
Less than before	2 (5.6)
First abused during current pregnancy	5 (13.9)
Pregnancy unplanned	32 (88.9)
Told prenatal care provider of abuse	1 (2.8)

Table 3: Relative risk for discrete variables in the abused women

Variable	Relative risk	95% confidence interval
Aged under 21 years	12.03	7.46-19.41
Failed to complete high school	9.02	6.35-12.81
Unemployed	2.89	2.29-3.24
Unmarried	5.06	3.72-6.89
Previous emotional problem	16.05	9.62-26.79
Pregnancy unplanned	2.96	2.48-3.53
Physically abused before current pregnancy	17.15	11.27-26.06
Regularly smokes cigarettes	4.27	4.27-7.89
Regularly drinks alcohol	3.61	2.68-4.86
Uses prescription drugs	1.84	1.38-2.46
Uses nonprescription drugs	2.77	2.03-3.78
Uses illicit drugs	46.39	19.88-108.34
Unhealthy diet	4.47	2.39-8.37
Reached criteria for "psychiatric case" on General Health Questionnaire	2.13	1.90-2.37

women to think that chance rather than their own behaviour affected their fetus's health.

Discussion

Of the 548 prenatal patients we surveyed, 6.6% reported physical abuse during pregnancy, which indicates a serious social and health problem. We were somewhat surprised that the rates of abuse did not vary among the five clinical settings we chose; this indicated the widespread, and unpredictable, occurrence of abuse. However, the data must be interpreted with some caution. Our sample came primarily from a large city, and our findings may not be generalizable to other areas. Although the response rate was excellent we cannot be sure that the self-reported information was reliable. In particular, we carried out no interviews with other informants and did not perform physical or laboratory examinations. Despite the opportunity for anonymity that our method offered it is possible that physical abuse and health risk behaviours may have been underreported.

Sixty (10.9%) women reported domestic physical abuse before their current pregnancy, a figure that is in keeping with other reports of abuse in nonpregnant women.^{4,6,7} However, of the 36 abused pregnant women 31 (86.1%) reported previous abuse. Thus, a past history of abuse is one of the strongest predictors of abuse in pregnancy. Twenty-three women (63.9%) claimed that the abuse escalated during pregnancy. In addition, the area of the body struck appeared to change during pregnancy: previous studies of nonpregnant women showed mainly facial blows,¹² but most of the women in our study reported abdominal blows. The adverse effects of abdominal trauma to pregnant women are known to include miscarriage, abruptio placentae, fetal loss, premature labour, fetal fractures and low birth weight or premature delivery. Other consequences for the woman may include rupture of the uterus, liver or spleen, pelvic fractures, antepartum hemorrhage, uterine contractions and premature rupture of the membranes.²⁰

Moreover, not all abuse is physical. Psychologic or verbal abuse and threats to safety were frequently reported in our survey. The role of intimidation in keeping women in abusive relationships has been well described²⁵⁻²⁹ and may partly explain why 28 (77.8%) of the women we surveyed were still with the abuser. Many of them did not know what social services were available should they seek to leave; this illustrates the importance of informing all women about the community resources available for abused women.

Factor analysis of the variables associated with abuse in pregnancy revealed three factors: social instability, unhealthy lifestyle and physical health problems. The social instability factor is probably a causal factor. Interventions such as educational upgrading, job training and family planning initiatives are likely to be helpful strategies in providing better options for young women

at risk, since 77.1% of the abused women in our survey were unemployed, and 88.9% had unplanned pregnancies. However, the "unhealthy lifestyle" and "physical health problems" factors may be the result of living in an abusive situation. We did not ascertain the temporal relation between the physical abuse and poor diet, health problems and the beginning of alcohol or drug use, and so we were unable to establish whether these variables were causes or effects. Many of the abused women spontaneously reported that violence occurred while they or their spouse (or both) were under the influence of alcohol or drugs. Although alcohol use and drug use are not sufficient causes for family violence, they appear to have a disinhibiting effect that increases the risk for violence.

Only one abused woman informed her prenatal care provider of the physical abuse. Despite visible signs of injury and a history of recent hospital admission in some women attending for prenatal care, the history of domestic violence was seldom volunteered or elicited. There is clearly a need for obstetricians, family doctors, midwives and nurses to be more aware of this problem.^{16,30,31} Useful screening questions (asked in a private office in the absence of the person attending with the patient) are "How do you and your partner resolve disagreements?" and "Have you been hit or hurt by anyone in the last year?"³⁰ Positive responses can be followed by specific questions related to the current pregnancy, the relationship to the abuser, the nature and location of the injury, the need for medical treatment, the current danger, and knowledge of social and legal services for abused women.

Since spousal abuse is often associated with child abuse^{2,25} the safety of any child in the home must also be considered. Once a history of abuse is identified, the care provider can help the woman by accepting her story in a nonjudgemental manner and by emphasizing that wife abuse is unacceptable and subject to criminal prosecution. The woman should be advised that steps can be taken to ensure her safety and that of the children and to end the violence.⁹ Abused women should be referred not only to social services but also when appropriate to substance abuse programs, psychiatric services or specialized obstetric services, since both they and their pregnancies are at high risk. Women in dangerous circumstances should be counselled and immediately referred to shelters and to social and legal services.

A recent study examined the reasons why physicians hesitate to ask women about domestic violence.³¹ Many physicians reported apprehension about asking a question "that might open Pandora's box" when time is at a premium and the available resources may be scarce or unknown. Although it is difficult to address all these concerns, physician education and experience, accessible social services, and a display of posters and pamphlets about domestic violence and local community resources would likely ameliorate the situation. Other physicians

reported a fear of offending the woman, particularly if she came from a social environment similar to the physician's.³¹ We found no evidence that women were offended by our questionnaires, and several older and well-educated women (some of whom reported abuse) spontaneously wrote positive comments about the survey. About two-thirds of the abused women identified themselves by name and expressed relief at being offered support and information. The 13 women who refused to complete the survey frequently commented that it did not apply to them. It therefore seems likely that pregnant patients view sensitively phrased questions or information about physical abuse to be a reflection of interest and concern. Because pregnancy is typically the only occasion when young women come into regular contact with physicians and other health care workers it is an excellent opportunity to identify health risk factors. Assessment for abuse should be standard care for all prenatal patients and should be included in standardized prenatal screening questionnaires.

The high rates of psychological distress on the GHQ and the finding that the risk of meeting psychiatric case criteria was twice as high for abused as for nonabused women are consistent with the previous descriptions of low self-esteem, despair, anxiety, fear, withdrawal, post-traumatic stress disorder, passivity, learned helplessness, depression and high rates of attempted suicide in abused women.^{11,23,25-29} Abused women may also present to physicians with vague physical symptoms such as headache, fatigue, insomnia, choking sensations, gastrointestinal complaints, pelvic pain and backache,²⁷ which may be manifestations of depression or of the chronic stress of their aversive living conditions. Enquiries should be made about the possible underlying causes of psychological symptoms and somatization.

The findings on the FHLC that abused pregnant women are less likely than nonabused women to feel any personal or internal control over the health of their fetus are likely associated with the higher rates of cigarette smoking, alcohol drinking, medication and illicit drug use in this population during pregnancy.²² This, combined with their strong belief in chance, may well reflect their own sense of powerlessness in shaping their lives and protecting the health of their future children. The cigarette smoking, alcohol and drug use may be maladaptive methods of coping with the anxiety and depression associated with abuse,^{14,15} but the motivation to stop or reduce intake is likely to be low if the woman believes that her behaviour has little effect and that the baby's health is mostly determined by chance. The health education of abused women about the adverse effects of smoking, drinking and drug use in pregnancy is likely to be unsuccessful unless their own sense of power and self-esteem are improved — an unlikely event while they remain in abusive living conditions.

A survey of a larger sample is needed, including pregnant women from small towns and rural areas, re-

cent non-English-speaking immigrants from specific regions and native Canadians, to determine whether there are other groups at high risk for abuse in pregnancy. However, because of the widespread occurrence of abuse this should not preclude a consideration of the risks of domestic violence for all pregnant women. With a fuller understanding of women who are abused in pregnancy it is hoped that we can provide educational programs aimed at health care professionals, community workers and women themselves that will permit earlier identification of abused women as well as intervention programs to better help them escape from their abusive circumstances. Moreover, it is likely that the health of the unborn children will also benefit.

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Conferences continued from page 1234

Nov. 18-21, 1993: Canadian Bioethics Society 5th Annual Conference — Primum Non Nocere: Patients, Professionals and Policies

Montreal

Thérèse Leroux, Centre de recherche en droit public, University of Montreal, PO Box 6128, Stn. A, Montreal, PQ H3C 3J7; tel (514) 343-7343, fax (514) 343-7508

Nov. 19-20, 1993: 6th Annual Conference of the British Columbia College of Family Physicians — Family Physicians: Meeting Society's Needs

Vancouver

Patricia Muss, British Columbia College of Family Physicians, 350-1665 W Broadway, Vancouver, BC V6J 1X1; tel (604) 736-6400, fax (604) 736-4675

Nov. 19-21, 1993: Getting It All Together — CEO/Board Retreat

Ottawa

Canadian College of Health Service Executives' Professional Services, 201-17 York St., Ottawa, ON K1N 5S7; tel (613) 235-7218, fax (613) 235-5451

Nov. 20, 1993: Diagnosis and Management of Psychotic Illness in Primary Care

Toronto

Carla Zuccherro, Department of Psychiatry, Sunnybrook Health Science Centre, 2075 Bayview Ave., North York, ON M4N 3M5; tel (416) 480-4094 fax (416) 480-6022

Nov. 21-25, 1993: Canadian Association for Clinical Microbiology and Infectious Diseases 61st Annual Meeting

Vancouver
Dr. Michael A. Noble, Microbiology Department, University Hospital, 2211 Wesbrook Mall, Vancouver, BC V6T 2B5; tel (604) 822-7656, fax (604) 822-7946

Nov. 24, 1993: The Death of a Child (sponsored jointly by the Royal Postgraduate Medical School [RPMS] Institute of Obstetrics and Gynaecology and the Multiple Births Foundation)

London, England

Symposium Secretary, RPMS Institute of Obstetrics and Gynaecology, Queen Charlotte's and Chelsea Hospital, Goldhawk Road, London, England W6 0XG; tel 011-44-81-740-3904, fax 011-44-81-741-1838

Nov. 25-27, 1993: Canada's 1st National Conference on Asthma and Education

Toronto

A. Les McDonald or Lyne Gagnon, Lung Association, National Office, 508-1900 City Park Dr., Gloucester, ON K1J 1A3; tel (613) 747-6776, fax (613) 747-7430

Nov. 26, 1993: Continuum '93 — Measuring and Managing the Patient Care Process

London

Sheila Cook, Continuum '93 Planning Committee, St. Thomas-Elgin General Hospital, PO Box 2007, St. Thomas, ON N5P 3W2; tel (519) 631-2020, fax (519) 631-1825

Nov. 26, 1993: Stroke Day '93 — What's New in Stroke

Toronto

Organizing Secretary, Stroke Research Unit, Sunnybrook Health Science Centre, 2075 Bayview Ave., Toronto, ON M4N 3M5; tel (416) 480-4287, fax (416) 480-4271

Nov. 26-28, 1993: 18th Annual Meeting of the Quebec Association of Urologists

Montreal

Jacqueline Deschênes, Quebec Association of Urologists, 3000-2 Complexe Desjardins, East Tower, Montreal, PQ H5B 1G8; tel (514) 350-5131, fax (514) 350-5181

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