Quebec's *Safe Working Conditions for a Safe Maternity Experience* Program: Survey of Consultant Physicians and Human Parvovirus B19 in Montreal-Centre

Athanasios Tom Koutsavlis, MD, MSc,¹ Jean-François Boivin, MD, ScD, FRCPC,²
Robert Simard, MD, CSPQ,¹ Michel Rossignol, MD, MSc¹

Safe Maternity Experience is a prevention program instituted in Quebec in 1981¹ to maintain safe working conditions for the pregnant or breastfeeding worker. It asserts the legal right of the worker to be withdrawn or reassigned to tasks that are not dangerous to herself or to her fetus.¹ Quebec is the only jurisdiction in North America to have passed this type of legislation.² Internationally, Finland, Denmark and France have similar programs.²

Throughout the province, consultant physicians in local occupational health teams treat requests for preventive withdrawal-reassignment. Recently, there has been an increasing number of requests involving human parvovirus B19 as a potential biologic risk factor in pregnancy. Evidence in the literature is controversial. The most commonly recognized illness associated with B19 infection is *Erythema infectiosum* (Fifth Disease).^{3,4} The peak frequency of B19 infection is believed to be in young children between 4 and 11 years of age.^{3,4} Several case reports⁵⁻⁷ and epidemiologic studies⁸⁻¹¹ have indicated that B19 infection in pregnancy may result in an increased risk of hydrops fetalis; however others have demonstrated no increased risk.¹²⁻¹⁶ The risk of B19 infection itself in pregnant women has been found to be

markedly higher in occupations involving contact with young children during outbreaks,¹⁷⁻¹⁹ in comparison to endemic situations.^{12,17,20} Finally, certain studies have suggested that adverse fetal outcomes secondary to B19 may only develop if maternal infection occurs during the second trimester.^{5,7,8,11}

No consensus has been reached in Quebec as to how requests involving B19 should be treated. Finland, Denmark and France also lack consensus, and their practice patterns have not been studied.² For these reasons, we surveyed consultant physicians in the Montreal region of Quebec, to assess inter-professional variations in practices. The objectives of this survey were to identify current treatment practices of requests involving human parvovirus B19 in Montreal and to identify factors that influence these practices.

METHODS

Using the SMEST database, a provincial resource that contains information on all consultant physicians of the *Safe Maternity Experience* program in Quebec,²¹ we identified 19 occupational health physicians who treated preventive withdrawal-reassignment requests in Montreal from October 1, 1998 to September 30, 1999. These physicians had a background in Family Medicine and/or training (specialization, diploma, graduate degree) in Community/Occupational Medicine. The physicians practised in five CLSCs (Centre local de services communautaires) designated as occupational health service centres,

and were sent a questionnaire by mail, to which all of them replied. Of the 19 physicians, only 11 treated requests involving B19, and these were retained as our study population.

The questionnaire included information on age, gender, year of medical school graduation, length of time treating requests, total requests treated in the past year and the number involving B19. The questionnaire further assessed how requests were treated by the physicians, taking into account serology status, epidemic-endemic situations, and specific trimesters of the pregnancy. The physicians' perception of risk for B19 transmission to pregnant workers in specific work environments was evaluated. Finally, questions were posed on what factors physicians' treatment decisions were based upon.

RESULTS

The mean age of the 11 physicians was 50.4 years. Seven were male. Their mean year of medical school graduation was 1974. On average, the physicians had been treating requests for 8.8 years. 4,543 requests were treated in the 12-month survey period as per SMEST data.²¹ On the basis of the questionnaire, 425 of these requests involved human parvovirus B19 (data missing for two physicians).

When the physicians were asked how they proceed when a pregnant worker in contact with groups of young children during an epidemic of rash and flu-like illness requests preventive withdrawal-reassignment, all 11 responded that they withdraw-

1. Montreal Public Health Department
2. Department of Epidemiology and Biostatistics, McGill University

Correspondence and reprint requests: Dr. Athanasios Tom Koutsavlis, Occupational and Environmental Health, Montreal Public Health Department, 1301 Sherbrooke Street East, Montreal, QC, H2L 1M3, Tel: 514-528-2400 ext. 3222, Fax: 514-528-2459, E-mail: kouts96@med.mcgill.ca

reassign immediately until maternal serology becomes available. If serology for B-19 IgG was negative, all but 1 physician withdrew-reassigned for the whole duration of the pregnancy. The one physician who did not, withdrew-reassigned only during the first trimester.

If the same worker presented the same request but during an endemic period, 9 physicians withdrew-reassigned pending serology, 1 did not withdraw-reassign until serology was confirmed, and 1 did not withdraw-reassign, independent of serology. If serology returned with maternal susceptibility to B19, 9 out of 10 who awaited serology withdrew-reassigned for the whole duration of the pregnancy, and 1 withdrew-reassigned only during the first trimester.

Tables I and II summarize the factors influencing physicians' treatment decisions and their risk perception of B19 transmission in specific environments. Elementary schools were recognized as high risk for B19 transmission, but agreement was lower in other work environments. Physicians considered Provincial Committee Reports and colleague practices as having had a strong influence on their practice decisions. Provincial Committee Reports, journal articles and other colleagues were important sources of information for the physicians' treatment of preventive withdrawal-reassignment requests.

DISCUSSION

The survey revealed that Montreal consultant physicians maintained similar treatment patterns of B19 requests. However, large variations were found in the physicians' perceptions of work environment B19 transmission risks. These variations were related to physicians' personal risk perception relative to the volume and type of contact pregnant workers had with young children in these environments. The survey was limited by the small number of physicians, but had a 100% response rate and involved a large region with a high proportion of B19 requests.

The survey confirmed that Provincial Committee Reports are important vehicles in influencing physician practices. These reports have been developed since 1995, by a provincial committee of physicians, as a

TABLE I Physicians' Perception of Risk for Transmission of Parvovirus B19 to Pregnant Workers in Specific Work Environments		
Work Environments	% of All Physicians Considering Environment as High Risk (n=11)	
Day-Care Centres	73%	(n=8/11)
Pre-Kindergarten Schools	82%	(n=9/11)
Elementary Schools	100%	(n=11/11)
Secondary Schools	27%	(n=3/11)
CEGEP (College) / Universities	0%	(n=0/11)
Medical Clinics*	30%	(n=3/10)
Hospital Centres*	30%	(n=3/10)

* Data missing for 1 physician

TABLE II Factors Influencing Physicians' Treatment Decisions of Preventive Withdrawal-Reassignment Requests Involving Parvovirus B19		
Factors of Possible Influence on Physicians' Treatment Decisions	% Physicians Considering Factor as Influential (n=11)	
Journal Articles*	63%	(n=5/8)
Provincial Committee Reports	100%	(n=11/11)
Treatment Decisions of Other Colleagues*	75%	(n=6/8)

* Data missing for 3 physicians

tool to support consultant physicians of the *Safe Maternity Experience* program. They have been distributed to consultant physicians in an attempt to reach converging practices on a number of hazards relative to pregnancy outcome. At the time of this survey, no finalized Reports concerning B19 had been circulated. A preliminary report, which the surveyed physicians had access to, was in production. This survey further identified that the Reports should focus on clarifying perceived B19 transmission risks in work environments, in order to achieve uniform practice patterns. The strategy used to disseminate the Reports should account for directly reaching key, leading consultant physicians, as colleague practices were considered influential in practice decisions. Further study of practice patterns of all consultant physicians in the province of Quebec may prove useful in the overall effort to reach consensus in the treatment of B19 requests.

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Received: November 5, 1999
Accepted: June 5, 2000

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