

# Is hyperemesis gravidarum related to country of origin?

## Short report

Vania Jimenez, MD Jacques D. Marleau, MSc

**H**yperemesis gravidarum is the most severe manifestation of nausea and vomiting during pregnancy.<sup>1</sup> Many studies have attempted to show associations between biopsychosocial stressors and hyperemesis gravidarum.<sup>2</sup>

Few studies, however, have looked specifically at whether ethnic origin or country of origin influence development of hyperemesis gravidarum.<sup>3,4</sup> Hyperemesis gravidarum is usually thought to be more prevalent in Western societies.<sup>5</sup> Two studies from New Zealand indicate that incidence of hyperemesis gravidarum differs according to women's ethnic origin.<sup>6,7</sup>

No studies have looked at how the process of immigration affects the emergence of hyperemesis gravidarum. This study attempted to determine whether hyperemetic women were more likely to be born outside the province of Quebec, ie, far from where current medical care was provided, implying that immigration was an issue. The house staff of the Jewish General Hospital (JGH) had a clinical impression that it was. This is a clinical retrospective study. Subjects were patients admitted to JGH. Data were collected from charts completed between April 1992 and March 1997.

### Chart review

A total of 19 839 women were pregnant during the study period; 254 women (1.3%) were noted to have suffered from hyperemesis gravidarum. The International Classification of Diseases used in the charts was also used to identify women in the hyperemesis gravidarum

**Dr Jimenez** is an Associate Professor in the Department of Family Medicine and Director of the Research Department at McGill University, and is Family Medicine Unit Director at CLSC Côte-des-Neiges in Montreal, Que. **Mr Marleau** is a researcher at the Centre de recherche et de formation du CLSC Côte-des-Neiges du Centre affilié universitaire.

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group. All women whose files mentioned the term "pregnancy" during this period were included.

The  $\chi^2$  test was used to examine the relationship between women's place or province of origin and presence or absence of hyperemesis gravidarum. Odds ratios were also calculated. The *P* value retained for this study was .05.

Results of the  $\chi^2$  test indicate that women born outside the province of Quebec have a higher rate of hyperemesis gravidarum than women born in Quebec ( $\chi^2 = 28.6$ , *df* = 1, *P* ≤ .0001). For every 1000 pregnant women born in Quebec, 7.9 suffered from hyperemesis gravidarum. For every 1000 pregnant women born outside the province, 16.7 developed hyperemesis gravidarum. For women born in Canada but outside Quebec, 11.1 developed the condition. We have specific data only for Ontario and New Brunswick: 14.1 and 20.8, respectively.

Women with hyperemesis gravidarum were 2.1 times (95% CI 1.60 to 2.80; *P* ≤ .0001) more likely to be born outside Quebec than in it (**Table 1**). This suggests that the process of migration has something to do with hyperemesis gravidarum. Immigrant women are perhaps more likely to have several stressors (eg, lack of social support from family and friends) during and after immigration. This psychosocial explanation is developed by Lub-Moss and Eurelings-Bontekoe.<sup>2</sup>

Table 1. Places of birth of women with hyperemesis gravidarum

BIRTHPLACE	HYPEREMESIS GRAVIDARUM	CONTROL GROUP
Outside Quebec	188 (a)	11 227 (b)
In Quebec	66 (c)	8358 (d)

Odds ratio formula: (a) x (d) / (c) x (b).

### Questions raised

In general, the association between place of birth and hyperemesis gravidarum poses some interesting questions. What aspects of immigration are

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related to hyperemesis gravidarum? How could stress be related to hyperemesis gravidarum?<sup>8</sup> What about migration within Canada? Are there important differences between refugee and immigrant hyperemetic women? Another interesting question is the effect of time of arrival on the development of hyperemesis. Unfortunately, it was impossible to test for these possibilities because these data were unavailable in the files.

It is difficult to disentangle the influence of biological variables associated with some ethnic groups from psychosocial stressors associated with immigration to a new place. In fact, it is possible that, for some immigrant women with hyperemesis gravidarum, a biological etiology is most likely. For example, Price et al<sup>3</sup> believed:

[A] racial difference may also be responsible for discordant observations on the role of thyroid hormones in hyperemesis gravidarum and the morning sickness of pregnancy, as it seems likely that non-thyroidal causes will be more common in populations of European origin.

Country of birth was identified for only some women in our research. Analysis of results is thus limited.

In some cultures, pregnant women are more likely to stay at home whatever the severity of their vomiting. This could explain why women of certain cultural backgrounds were not hospitalized with hyperemesis gravidarum. Also, in some cultures, people believe that nausea and vomiting of pregnancy is a signal that the pregnancy is healthy; consequently many women are reluctant to ask for help and deny their symptoms.

Our results suggest that women who develop hyperemesis gravidarum in Quebec are statistically more likely to be born outside the province of Quebec. Other studies are needed to investigate what factors (or level of intensity of a given factor) or combination of factors are associated with hyperemetic women in the two subgroups. Findings can be used to improve therapeutic and preventive (psychosocial and pharmacologic) approaches to these patients. ♦

**Correspondence to:** Vania Jimenez, Centre de recherche et de formation du CLSC Côte-des-Neiges, Centre affilié universitaire, 5700 chemin de la Côte-des-Neiges, Montreal, QC H3T 2A8; telephone (514) 731-1386 (extension 2440); fax (514) 731-4143; e-mail [mcvj@musica.mcgill.ca](mailto:mcvj@musica.mcgill.ca)

### Key points

- This study was conducted at the Jewish General Hospital in Montreal, Que, which has a large population of immigrant women.
- Women admitted with a diagnosis of hyperemesis gravidarum were 2.1 times more likely to be born outside Quebec.

### Points de repère

- Cette étude a été réalisée à l'Hôpital général juif à Montréal (Québec), qui dessert une grande population de femmes immigrées.
- Il était 2,1 fois plus fréquent que les femmes admises pour cause d'hyperemesis gravidarum soient nées à l'extérieur du Québec.

### References

1. Broussard CN, Richter JE. Nausea and vomiting of pregnancy. *Gastroenterol Clin North Am* 1998;27:123-51.
2. Lub-Moss MMH, Eurelings-Bontekoe EHM. Clinical experience with patients suffering from hyperemesis gravidarum (severe nausea and vomiting during pregnancy): thoughts about subtyping of patients, treatment and counseling models. *Patient Educ Counseling* 1997;31:65-75.
3. Price A, Davies R, Heller SR, Milford-Ward A, Weetman AP. Asian women are at increased risk of gestational thyrotoxicosis. *J Clin Endocrinol Metab* 1996;81:1160-3.
4. Chang W, Johnston C. Unsuspected thyrotoxicosis and hyperemesis gravidarum in Asian women. *Postgrad Med J* 1997;73:234-42.
5. Fairweather DVI. Nausea and vomiting during pregnancy. *Obstet Gynecol Ann* 1978;7:91-105.
6. Browning J, North R, Hayward P, Mantell C, Cuttance P. Hyperemesis: a particular problem for Pacific Islanders. *N Z Med J* 1991;104:480.
7. Jordan V, MacDonald J, Crichton S, Stone P, Ford H. The incidence of hyperemesis gravidarum is increased among Pacific Islanders living in Wellington. *N Z Med J* 1995;108:342-4.
8. Schafer W. Incorporating social factors into the mind-body and wellness fields. *Adv Mind-Body Med* 1998;14(1):43-73.

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