

Obstetrical Complications in Pregnant Medical and Surgical Residents

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Abstract

Objective: Pregnant residents are at risk for obstetrical complications. The purpose of our study was to evaluate the incidence and type of obstetrical complications of pregnancy during residency training, and their possible contributing factors.

Method: We conducted a retrospective cohort study using a web-based questionnaire sent to 190 residency programs, both medical and surgical, across North America. The questionnaire was distributed to all female residents, and participants were asked to answer the questionnaire only if they had ever been pregnant. The questionnaire consisted of 10 multiple-choice questions and focused mainly on the complications that residents may have encountered during pregnancy before and during their residency training. The results were compared with those of 3767 pregnant women of similar age.

Results: The rate of obstetrical complications among residents who had up to six nights on call per month (43/163 or 26.4%) was significantly lower than those who had more than six nights on call per month (37/75 or 49.3%) ($P < 0.001$). Among surgical residents, 16% performed over 40 hours of surgery per week. The rate of obstetrical complications among residents who had up to eight hours of operating room time per week (8.9%) was significantly lower than among residents who worked more than eight hours per week (41.7%) ($P < 0.001$). When we compared obstetrical complications among residents with those of women in the general population, we found that residents had higher rates of miscarriage, hypertension in pregnancy, placental abruption, and intrauterine growth restriction.

Conclusion: Pregnancy during residency has a higher than average rate of adverse obstetrical outcomes. Longer operating hours and having more than six nights on call per month are associated with obstetrical complications. In addition, pregnant residents are more likely to have hypertensive disorders of pregnancy, intrauterine growth restriction, placental abruption, and miscarriages than a cohort of pregnant women of similar age.

Key Words: Pregnancy complications, residency training, medical resident, surgical resident

Competing Interests: None declared.

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Résumé

Objectif : Les résidentes enceintes sont exposées à des risques de complications obstétricales. Notre étude avait pour objectif d'évaluer l'incidence et le type des complications obstétricales constatées dans le cadre de la résidence, ainsi que leurs facteurs contributifs possibles.

Méthodes : Nous avons mené une étude de cohorte rétrospective au moyen d'un questionnaire Web que nous avons fait parvenir à 190 programmes de résidence, tant en médecine qu'en chirurgie, de partout en Amérique du Nord. Ce questionnaire a été distribué à toutes les résidentes et nous avons demandé aux participantes de ne remplir le questionnaire que si elles avaient déjà connu une grossesse. Le questionnaire comptait 10 questions à choix multiple et était principalement axé sur les complications de grossesse auxquelles les résidentes pourraient avoir eu à faire face avant et pendant leur résidence. Les résultats ont été comparés à ceux qui ont été obtenus par 3 767 femmes enceintes d'âge semblable.

Résultats : Le taux de complications obstétricales chez les résidentes qui étaient de garde pendant jusqu'à six nuits par mois (43/163 ou 26,4 %) était considérablement inférieur à celui des résidentes qui étaient de garde pendant plus de six nuits par mois (37/75 ou 49,3 %) ($P < 0,001$). Parmi les résidentes en chirurgie, 16 % menaient plus de 40 heures de chirurgie par semaine. Le taux de complications obstétricales chez les résidentes qui cumulaient jusqu'à huit heures en salle d'opération par semaine (8,9 %) était considérablement inférieur à celui qui a été constaté chez les résidentes ayant cumulé plus de huit heures par semaine (41,7 %) ($P < 0,001$). Lorsque nous avons comparé les complications obstétricales qu'ont connues les résidentes à celles qu'ont connues les femmes de la population générale, nous avons constaté que les résidentes avaient connu des taux supérieurs de fausse couche, d'hypertension pendant la grossesse, de décollement placentaire et de retard de croissance intra-utérin.

Conclusion : La grossesse pendant la résidence compte un taux d'issues obstétricales indésirables plus élevé que la moyenne. Le fait de cumuler un plus grand nombre d'heures en salle d'opération et le fait d'être de garde pendant plus de six nuits par mois sont associés à des complications obstétricales. De surcroît, les résidentes enceintes sont plus susceptibles de connaître des troubles hypertensifs de la grossesse, un retard de croissance intra-utérin, un décollement placentaire et une fausse couche qu'une cohorte de femmes enceintes d'âge semblable.

INTRODUCTION

Pregnancy can be a stressful time for any woman, but especially for a full-time working mother. Since most female residents are in their childbearing years, pregnancy often occurs during their residency training. Residents have long working hours and sometimes an unfavourable working environment.¹⁻³ However, the effects of this workload on pregnancy outcome are still not clear.

Previous studies of small cohorts have shown that pregnant residents are at increased risk for obstetrical complications such as preterm labour, preterm premature rupture of membranes, preeclampsia, low birth weight, or intrauterine fetal demise.⁴⁻⁸ Whether this increased risk is related to the number of working hours, time spent in the operating room, or the stress of residency training itself has not been investigated. As the number of women enrolled in residency training programs is steadily increasing, evaluation of the impact of residency training on pregnancy outcome is timely and important.^{3,4,9}

In a study of general surgery residents in Canada, Merchant et al. found that lack of adequate policies for maternity or parenting, obstacles to breastfeeding, and the increased workload for residents made medical students planning to start a family reluctant to join the general surgery residency program.¹⁰ Many residents feel that they have no support from their program directors.⁴ Other studies have found that most pregnant residents have reported being treated fairly by their colleagues, and that the quality of their work has not been affected by their pregnancy.^{2,11} Davis et al. reviewed maternity leave policies in 274 accredited obstetrics and gynaecology residency programs in the United States; most programs agreed that maternity leave had a significant impact on the schedules of both the residents on maternity leave and the remaining residents covering their absent colleagues.¹²

If residency training increases the risk of pregnancy complications, and if some residency programs do not have a structured maternity leave policy, residents might postpone their childbearing. Pregnancy and childbirth during residency training may not only influence personal choices but may also affect future career planning.^{9,13} Because of the work and time demands of residency, residents may need to stop breastfeeding earlier than desired, and this has been shown to have a major impact on their level of satisfaction.^{9,13,14}

ABBREVIATIONS

IUGR intrauterine growth restriction
PPROM preterm premature rupture of membranes

The purpose of our study was to evaluate obstetrical complications of pregnancy during residency training and their possible contributing factors.

METHODS

We conducted an email survey by sending a link to a web-based questionnaire (online eAppendix) to 190 surgical and medical residency programs across North America in April and May 2013. Program administrators were asked to forward the link to all female residents in their program, and the residents were encouraged to participate in the survey only if they had ever been pregnant. The questionnaire contained 10 multiple-choice questions that permitted multiple answers where applicable. The questions focused mainly on the complications that residents might have encountered during their pregnancy before and during residency training.

The surveys were completed anonymously. We compared the incidence of pregnancy complications among residents to the incidence in 3767 obstetrical patients of similar age who were admitted to the Jewish General Hospital, Montreal, in the same year. We compared the proportions using chi-square test or Fisher exact test.

The Institutional Review Board of the Jewish General Hospital, in Montreal, QC, provided ethics approval for the study.

RESULTS

We received responses from 238 residents: 19 from medical residency programs, and 219 from surgical programs. Because of a lack of information from the programs, the overall survey response rate could not be calculated.

Baseline characteristics of the responders are shown in Table 1. There were equal numbers of residents in each age group. Most residents had only one pregnancy, and 10% to 15% of residents had three or more pregnancies.

All medical residents continued doing night call during pregnancy, and 10% of surgical residents were not required to do night call while pregnant. Most residents had up to six nights on call per month during their pregnancy. Residents in surgical programs (33%) tended to perform more night call than those in medical programs (10.5%). Overall, 5% to 12% of residents reported having reduced work hours while pregnant. When asked about stress while pregnant during residency, most respondents felt that their stress level was moderate.

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