

## Short Interval Between Miscarriage and Conception Is Linked to Best Outcomes

Women who conceive less than six months after miscarrying have better pregnancy outcomes and lower rates of several complications than those who have a longer interval between pregnancies, according to a Scottish population-based study.<sup>1</sup> Eighty-five percent of those with the shortest interpregnancy intervals had a live birth, compared with 73–79% of those with longer intervals; the differences were statistically significant and were confirmed in multivariate analysis. Women whose interpregnancy intervals were less than six months and who went on to have a live birth had reduced risks of having a cesarean delivery, a preterm birth or a low-birth-weight infant; however, they were at increased risk of requiring labor induction.

Noting that the optimal timing of conception following a miscarriage has been “controversial,” the researchers examined the issue by using a database that documents hospital admissions throughout Scotland and undergoes regular, rigorous quality assurance checks. By linking records within the database, they identified all women who had a first pregnancy that ended in miscarriage in 1981–2000 and went on to have another pregnancy; only women who had singleton pregnancies were included in the analyses. Using information on hospital admission dates and gestation of the second pregnancy at the time the woman was admitted, the researchers calculated interpregnancy intervals, which they grouped into five categories. They conducted chi-square tests to compare pregnancy outcomes and complications across these categories, and multivariate logistic regression analyses to assess risks while controlling for year of first pregnancy and mother’s age and socioeconomic status at that time.

Nearly 31,000 women were included in the analyses, of whom 41% had conceived within six months of their miscarriage, 25% within 6–12 months, 10% within 12–18 months, 6% within 18–24 months and 18% after longer intervals. At the time of their first pregnancy, women with the shortest interpregnancy interval were older than those with the longest interval (mean, 26.0 vs. 23.9 years), more likely to be classified as not socioeconomically deprived (35% vs. 28%) and less likely to report ever having smoked (10% vs. 18% of those for whom this information was available).

The proportion of women whose second pregnancy ended in a live birth was highest among those with the shortest interpregnancy interval—85%, compared with 73–79% in the other groups. Women who conceived within six months of their miscarriage were less likely than others to have a second miscarriage (10% vs. 12–13%), an abortion (2% vs. 5–10%) or an ectopic pregnancy (0.4% vs. 0.6–1.6%).

Results of multivariate analyses confirmed the reduced risk of adverse pregnancy outcomes among women with interpregnancy intervals of less than six months. Compared with those who conceived 6–12 months after miscarrying, they had significantly lower odds of miscarriage (odds ratio, 0.7), abortion (0.4) and ectopic pregnancy (0.5). Women with the longest intervals, by contrast, had elevated odds of ectopic pregnancy and abortion (2.0 and 2.4, respectively); those with intervals of 18–24 months also had an increased risk of abortion (1.6).

In bivariate analysis of second pregnancies that ended in live births, the prevalence of four maternal and perinatal complications was lowest among women with interpregnancy intervals of less than six months and highest among those whose second conception occurred more than 24 months after their miscarriage: cesarean delivery (19% vs. 24%); preterm delivery, or delivery at less than 36 weeks (7% vs. 11%); very preterm delivery, or delivery at less than 32 weeks (2% vs. 3%); and low birth weight, defined as less than 2,500 g (7% vs. 12%). However, the rate of labor induction among women with the shortest interpregnancy interval (27%) was exceeded only by that among women whose second conception occurred 18–24 months after their first pregnancy ended (30%).

Multivariate analysis bore out the bivariate results. Women who conceived within six

months after miscarrying were less likely than those who conceived within 6–12 months to have a cesarean delivery, a preterm birth or a low-birth-weight infant (odds ratios, 0.8–0.9). Those with interpregnancy intervals of more than 24 months had elevated risks of these complications and of delivering very preterm (1.2–1.4). The risk of labor induction was elevated for women with the shortest interpregnancy intervals (1.1).

The investigators note that their findings are limited because they are based only on miscarriages that led women to seek hospital care, the Scottish population is “relatively homogeneous” and information on whether women planned the length of interpregnancy intervals was not available. Despite these and other shortcomings, however, they conclude that “it is unnecessary for women to delay conception after a miscarriage.” Contrary to current

guidelines, they add that “women wanting to become pregnant soon after a miscarriage should not be discouraged” unless specific conditions indicate otherwise.—*D. Hollander*

#### REFERENCE

1. Love ER et al., Effect of interpregnancy interval on outcomes of pregnancy after miscarriage: retrospective analysis of hospital episode statistics in Scotland, *BMJ*, 2010, doi:10.1136/bmj.c3967, accessed Aug. 10, 2010.