Many Women at High Risk for Unintended Pregnancy Are Unaware of Emergency Contraception or How to Use It

Among women at high risk for unintended pregnancy, only 36% have heard of emergency contraception, 19% can name or describe emergency contraceptive pills and 7% know the correct timing for the method's use, according to a survey of 371 mostly Hispanic, low-income postpartum women at a public hospital in San Francisco.[1] To learn how efforts to educate women about emergency contraception could be better targeted, the researchers examined predictors of women's knowledge of and willingness to use the method. Compared with women who have just given birth to their first child, women who have had previous births have reduced odds of knowing about emergency contraception. However, among women who know of emergency contraception, those with previous births have elevated odds of being willing to use the method.

From September 1998 to March 1999, researchers interviewed English- or Spanish-speaking women who had had a live birth. The majority of the women in the sample (72%) were Hispanic, and two-thirds of this group spoke only Spanish. Sixty-six percent of participants had a household income less than $20,000, and only 3% had private insurance. Almost one in five study participants were teenagers; the average age of the participants was 25.6 years.

The women participated in 10-minute interviews with bilingual interviewers in the hospital on the day of their discharge. To assess women's familiarity with emergency contraception, interviewers asked them if they had ever heard of "morning-after" pills or emergency contraceptive pills. To determine if women had further knowledge of the method, interviewers asked them whether a woman who has just had sex and thinks she might become pregnant can do anything in the next few days to prevent pregnancy. The interviewers recorded an affirmative response only if a woman could name or describe "morning-after" or emergency contraceptive pills. If women were aware of the method, the interviewers asked them about the timing for its use, whether it is available, how to obtain it and whether they had ever used it. To determine women's willingness to use emergency contraception in the future, the interviewers asked, "If a pill existed which a women could take after unprotected intercourse to prevent pregnancy, would you ever consider using it?"

Forty-five percent of the women said that prior to their current pregnancy, during a time when they did not want to conceive, they had had unprotected intercourse all or most of the time. Thirty-eight percent had previously had an unwanted pregnancy, and 17% had had an abortion; 63% said that their current pregnancy had been unplanned.

Three percent of the women had used emergency contraception, and 36% had heard of it. Just 19% correctly named or described emergency contraceptive pills in response to the question regarding what a woman could do if she had had sex and thought she could become pregnant, and only 7% were aware that the method must be used within 72 hours after intercourse. Eighteen percent of participants objected to the use of emergency contraception for moral or religious reasons. Finally, 64% said they would be willing to use emergency contraception in the future.

Fewer than half (44%) of the women who had heard of emergency contraception believed that it is safe, and just 20% knew the correct timing for its use. A third (32%) believed that the method induces abortion. Approximately two-thirds of those familiar with emergency contraception knew that it is effective, that it is available in the United States and that one needs a prescription to obtain it (65–67%). Eighty-one percent knew that emergency contraception does not prevent sexually transmitted infections.

In univariate analyses, the investigators found that a wide range of factors relating to women's background characteristics (ethnicity, age and socioeconomic factors) and contraceptive and reproductive histories were associated with whether women were familiar with emergency contraception. However, few of these factors were associated with whether women were willing to use the method.

In a series of multivariate logistic regression analyses, the researchers found that teenagers and women older than 30, those who have used condoms, those who have had an abortion and those who object to emergency contraception for moral or religious reasons had elevated odds of knowing about emergency contraception (odds ratios, 2.0–2.4). Hispanic women who spoke only Spanish, Asian and Pacific Islander women and women who had given birth before all had reduced odds of being familiar with emergency contraception (odds ratios, 0.2–0.5).

Depending on whether women were familiar with emergency contraception, different factors were predictive of their willingness to use a pill that prevents pregnancy after unprotected intercourse. Therefore, the researchers analyzed the responses about participants' willingness to use such a pill according to whether women were familiar with the method. Among women who were unfamiliar with emergency contraception, married women and women who objected to the method for moral or religious reasons had reduced odds of being willing to use such a pill in the future (0.4–0.5), while women who had previously used oral contraceptives had elevated odds of being willing to do so (1.8).

Among participants who said they were familiar with emergency contraception, women with family incomes of more than $20,000 and those who morally objected to emergency contraception had reduced odds of being willing to use it in the future (odds ratio, 0.3), while women who had given birth before had elevated odds of being willing to do so (3.0). In addition, women who had accurate information about its safety and whether it causes an abortion had elevated odds of being willing to use it in the future (2.4 and 2.5, respectively).

The researchers note that although the women who participated in the study were mostly Hispanic and low-income, and therefore not representative of all women in the United States, these women are a population at high risk for unintended pregnancy. Educational efforts on emergency contraception targeted to these women could therefore have a significant impact on reducing unplanned pregnancies, according to the researchers. The investigators also say that their findings indicate a need for emergency contraception education efforts targeted to women who have had multiple births, as well as to Asian women and monolingual Spanish-speaking women, who need educational materials in their languages. The researchers conclude that to increase women's willingness to use emergency contraception, "it is insufficient to educate women about the existence of [the method]; we must reassure them that it is safe and that it does not induce abortion." —*B. Brown*

Reference

1. Jackson R et al., Knowledge and willingness to use emergency contraception among low-income postpartum women, *Contraception*, 2000, 61(6):351–357.

Women Exposed to DES In Utero Have Elevated Risks Of Fertility Impairment and Adverse Pregnancy Outcomes

Women whose mothers took diethylstilbestrol (DES) during pregnancy are more likely than women who were not exposed to the drug in utero to experience delays in conceiving and are less likely ever to become pregnant. When DES-exposed women conceive, their risk of having a first-trimester spontaneous abortion is elevated by about 30%, and their odds of having a preterm birth, second-trimester pregnancy loss or ectopic pregnancy are 3–4 times those of unexposed women. These findings are based on data from what the researchers describe as "the largest number of women with documented in utero exposure to DES to be observed systematically throughout much of their reproductive life span."[1]

The analyses included 3,373 women who were exposed to DES and 1,036 unexposed controls who were enrolled in one of two longitudinal projects. Most—3,140 women with DES exposure and 826 controls—were part of a multisite national study begun in the mid-1970s. Exposed women in this study either had been identified through a review of medical records, had been referred to the project by a physician or had come to the project on their own; controls were matched by age and by their mothers' age to women identified through record review. The remaining 233 exposed women and 210 controls were part of a study that has followed the daughters of women who participated in a clinical trial of DES conducted in Chicago in the 1950s.

All of the women completed a questionnaire that was mailed to them in 1994, asking about their health history, pregnancies and pregnancy outcomes. On the basis of similarities of results among subgroups, the researchers combined the 1,683 women identified through record review in the multisite study and those from the Chicago study into one group for analysis, and the 1,690 women from the physician-referred and walk-in subgroups of the multisite study into another group. Thus, in their analyses of pregnancy outcomes, they compared three groups of women: "record-review," "physician and self-referral," and controls. The investigators note that since referrals probably were the result of reproductive problems or gynecologic abnormalities, the main emphasis is on the women making up the record-review group.

All three groups were similar in age (on average, 40–43 years), were overwhelmingly white (97–98%) and were predominantly married (72–74%). Women in the record-review group were slightly older at first pregnancy than those in the other two groups (26 vs. 25 years), and they started smoking at a later age than controls (18.4 vs. 17.8 years).

DES-exposed women were significantly more likely than others to have had difficulty conceiving: Some 32% of those identified through record review (and 37–40% of those who were referred by a physician or who walked in) had experienced a delay of 12 months or more when trying to become pregnant, compared with 19% of controls. In addition, the proportion who had ever been pregnant was lower among exposed women identified through record review or referred by a physician (74–75%) than among those in the control group (81%).

For women's first pregnancies and for all pregnancies combined, the analysts calculated relative risks to compare the occurrence of selected outcomes among DES-exposed women and those whose mothers had not taken the drug, while adjusting for women's age and the study center where they were originally followed up. According to these calculations, exposed women in the record-review group had a significantly reduced risk of having their first pregnancy end in a full-term live birth (risk ratio, 0.8). Furthermore, compared with controls, these women were 2.0 times as likely to have a spontaneous abortion, 3.1 times as likely to have a preterm birth (i.e., before 37 weeks' gestation) and 5.3 times as likely to have an ectopic pregnancy.

In their first pregnancy, women in the physician and self-referral group had poorer outcomes than those in the record-review group. Their risk of having a full-term live birth, relative to that of controls, was lower (0.6), and their chances of having a preterm birth or ectopic pregnancy were higher (5.0 and 9.2, respectively). While their risk of spontaneous abortion was similar to that of women in the record-review group (1.9), they had an added risk of stillbirth (6.3).

The analysis of adverse outcomes in any pregnancy yielded similar results for both groups of women who were exposed to DES. These women had a slightly reduced risk of ever having a live birth (0.95–0.96), and those who had any live births had fewer than controls. Women whose mothers took the drug had elevated risks of preterm birth (2.9 in the record-review group and 3.7 in the physician and self-referral group), spontaneous abortion in the first 14 weeks of pregnancy (1.3 and 1.6, respectively), pregnancy loss during weeks 15–27 (4.3 and 5.8) and ectopic pregnancy (3.8 and 5.5). Exposed women in the physician and self-referral group were less likely than controls to have had an induced abortion (0.7).

The analysts note that "even if… DES was no longer used in pregnancy after 1971 in the United States (which is not actually the case), there are still many DES-exposed women of reproductive age." Therefore, they conclude, "it is important for obstetrician-gynecologists to be aware of the consequences of DES exposure in utero on pregnancy outcome."—*D. Hollander*

Reference

1. Kaufman RH et al., Continued follow-up of pregnancy outcomes in diethystilbestrol-exposed offspring, *Obstetrics & Gynecology*, 2000, 96(4):483–489.

A History of Sexual Abuse Elevates the Massachusetts Teenagers' Risk of Engaging in Unsafe Sexual Practices

Almost one-third of females and nearly one in 10 male high school students in Massachusetts say they have experienced sexual abuse.[1] Moreover, teenagers who have had such experiences are more likely than others to take sexual risks. Young women who say they have had sexual contact against their will are more likely than those who have not to have had intercourse before age 15 and to have had multiple sex partners. Adolescent males with a history of sexual abuse are more likely than those without to have had three or more partners in their lifetime and to have had two or more partners within the past three months. Both males and females who have had sexual contact against their will are also more likely than their counterparts to have ever been pregnant or had sex that resulted in a pregnancy.

To assess the association between sexual abuse and risky sexual behavior among adolescents, researchers analyzed data from the 1997 Massachusetts Youth Risk Behavior Survey. Students from 58 randomly selected Massachusetts public high schools participated in the survey, and data were weighted to reflect all such students in the state. The analyses are based on respondents who reported having ever had sexual intercourse (779 females and 831 males). These young people were evenly distributed by age-group and grade. Of the females, 74% were white, 10% were Hispanic and 8% were black. Among males, 69% were white, 12% were Hispanic and 10% black. Ninety-six percent of females and 94% of males reported having partners of the opposite sex only.

Looking at sexual risk behaviors, the researchers found that 50% of males were younger than 15 when they first had intercourse, that 43% had had three or more partners in their lifetime and that 19% had had two or more partners in the past three months. Among males, 30% reported alcohol use at last sex, 35% said they had not used a condom at last intercourse and 13% reported that they had impregnated a partner. Among females, 43% were younger than 15 when they first had intercourse, 36% had had three or more partners in their lifetime and 12% had had two or more partners in the past three months. Almost half of female adolescents who had had only male partners reported not having used a condom at last intercourse (45%). Overall, 18% said that they had been pregnant, and 23% said that they had used alcohol at last sex. Among all students who reported having partners of the opposite sex only, close to 30% said they had not used any contraceptive at last intercourse.

The authors also examined behaviors related to sexual risk, including aggressive and delinquent activities, as well as alcohol and drug use. In response to the question "During your life, has anyone ever had sexual contact with you against your will?" 30% of females and 9% of males answered yes. Whereas 56% of young men reported fighting within the past 30 days, 37% of young women did so. Additionally, 40% of males said that they had carried a weapon, 72% that they had used alcohol, 51% that they had participated in binge drinking and 51% that they had used marijuana within the past 30 days. Thirteen percent of females reported that they had carried a weapon, 67% that they had used alcohol, 44% that they had participated in binge drinking and 45% that they had used marijuana within the past 30 days. While 38% of young women had thought about suicide within the past 12 months, 23% of males had done so. Nearly all adolescents had received HIV education in school (91–94%).

The researchers used logistic regression analyses to determine the relationship between sexual risk and sexual abuse, controlling for demographic variables found in chi-square analyses to be significantly associated with sexual risk (age, grade, and race or ethnicity). Young women with a history of abuse were significantly more likely than other females to have first had sex before the age of 15 (odds ratio, 2.3), to have had three or more partners in their lifetime (2.9), to have had two or more partners in the past three months (2.1), to have ever been pregnant (2.2) and to have used substances prior to last intercourse (1.5). Despite slightly elevated odds ratios, females who reported abuse were no more likely than other young women to have not used a condom or to have not practiced contraception at last intercourse.

Males who reported having been sexually abused were significantly more likely than those who did not to have been younger than 15 at first intercourse (odds ratio, 2.4), to have had three or more partners in their lifetime (4.2), to have had two or more partners within the past three months (5.1) and to have used substances at last sex (2.7). They were also more likely to have not used a condom (1.5) and to have not practiced contraception (2.2) at last intercourse and to have ever had sex that resulted in a pregnancy (5.3).

To further assess the effects of a history of sexual abuse on sexual risk behaviors, the authors conducted stepwise logistic regression analyses (controlling for selected demographic characteristics and other factors associated with these risk behaviors). Females with a history of abuse remained significantly more likely than those without a history of abuse to have experienced first intercourse before age 15 (odds ratio, 2.2) and to have had three or more partners in their lifetime (2.5). Young women who had experienced sexual contact against their will also continued to be significantly more likely than their counterparts to have ever been pregnant (1.9).

Among males, those with a history of abuse remained significantly more likely than other young men to have had three or more partners ever (odds ratio, 3.2) and to have had two or more partners within the past three months (2.9). Furthermore, those with this history continued to be more likely than those without this background to have gotten someone pregnant (3.4). Condom use and contraceptive use did not remain significantly associated with a history of sexual abuse in analyses for adolescent males.

Because they found an association between sexual abuse and risky sexual behaviors, the authors conclude that sexuality education programs should raise awareness about sexual abuse and existing referral services and that health personnel should screen for sexual assault among adolescents and provide referrals. They also emphasize that a more integrated approach is required to respond to the needs of adolescents with a history of sexual abuse because they often engage in sexual and other risk behaviors. Finally, they stress that "interventions for gay, lesbian, and bisexual youth as well as heterosexual boys, populations much overlooked in prevention research and practice, are also needed to reduce both sexual abuse trauma and sexual risk."—*L. Schreck*

Reference

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Users Give New Synthetic And Latex Condoms Similar Ratings on Most Features

Three types of condoms—one latex and two synthetic—had similar failure rates in a crossover study conducted in California, and overall, users had no preference among them.[1] On most measures of acceptability, participants gave comparable ratings to a well-known latex condom and a new nonlatex one that has been approved by the Food and Drug Administration but is not yet commercially available. The exceptions were that men preferred the sensitivity afforded by the synthetic (42%) over that of the latex (15%), and they considered latex safer than the new material (43% vs. 18%). As the researchers observe, the development of new effective and acceptable condoms could lead to more consistent use of the method and would thereby represent a "major contribution to public health."

The study enrolled 54 couples aged 18–45 who were monogamous and were using condoms. At each of three visits to the study site, participants were given three condoms of a particular type: latex, polyurethane or a new synthetic (styrene ethylene butylene styrene). They were asked to use all three condoms of a given material before returning for the next set of condoms; the sequence of condom types was determined randomly. For each condom they used, couples were requested to complete a form that addressed the conditions of use, their impressions and any problems that occurred. Additional information was gathered in interviews during visits to the study site. A fourth visit, after couples had used each type of condom, included an interview that asked about their preferences among them.

The analyses are based on data from 51 couples who provided information on all three condom types. These couples were predominantly 25 or older (72%), married or living together (68%) and white (61%); 85% had more than a high school education. Four-fifths of couples said that they had used condoms together more than 50 times, and one-third said that they had had a condom break.

Couples reported having significantly more problems using polyurethane condoms than using latex or the new nonlatex ones. They were more likely to say that they had had difficulty donning polyurethane condoms (53%) than others (12–13%) and that polyurethane condoms had slipped during intercourse (17%, compared with 3–6% for the others). Additionally, polyurethane condoms were more likely to stretch out of shape or bunch up during sex (13–17%) than were condoms made of the other materials (3–8%).

Total failure rates ranged from 2% for the new condom to 7% for polyurethane condoms; the differences were not statistically significant. No more than 2% of any type of condom broke during intercourse, and no more than 3% slipped; 1% or fewer failed for other reasons (e.g., could not be unrolled).

When asked to rate several features of each type of condom on a scale of one (indicating "very unfavorable/worst") to 10 ("very favorable/best"), participants generally gave all three comparable ratings. However, men rated polyurethane condoms as significantly more difficult to put on (mean score, 4.6) than either of the other types (7.1–7.6), and they rated latex lower than polyurethane for smell (4.5 vs. 5.9). Women also gave polyurethane the lowest score for ease of donning (4.2, compared with 7.1–7.3 for the others); as regards smell, they gave both latex and the new synthetic lower ratings (4.9–5.0) than polyurethane (6.5). In addition, women gave polyurethane a higher score than latex for sensitivity (6.5 vs. 5.5).

Overall, roughly 25–35% of both men and women preferred each type of condom; differences between types were not statistically significant. Likewise, preferences regarding specific features of the condoms varied little by type. Men were more likely to favor the safety of latex (43%) over that of polyurethane (12%) or the new synthetic (18%). They preferred the new condom to latex for sensitivity (42% vs. 15%), and the new synthetic to polyurethane for noise during use (27% vs. 10%) and for fit (45% vs. 27%). Higher proportions of men preferred latex or the new synthetic for the ease with which the condom is unrolled (37–45%) than favored polyurethane for this feature (10%).

Among women, even fewer differences emerged. Like men, women were less likely to consider the polyurethane condom easy to unroll (6%) than they were to prefer the other types for this reason (32–42%). They favored latex over polyurethane for safety (35% vs. 14%) and considered the lubricant on both latex and new synthetic condoms less messy (29% each) than the lubricant coating the polyurethane condom (10%).

Given the "satisfactory performance of all three condom types," the researchers conclude that "condoms made of new materials can compete successfully with conventional latex condoms." In light of the need for nonallergenic condoms that are acceptable to potential users, the new synthetic condom that was assessed in this evaluation could be a valuable addition to the market.—*D. Hollander*

Reference

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Women with Family History Of Breast Cancer Have Added Risk with Pill Use

Women whose sisters or mothers have had breast cancer are at increased risk of developing the disease, and an examination of data from a multigenerational family study suggests that their risk is further elevated if they use oral contraceptives.[1] Overall, among sisters and daughters of women with breast cancer, those who had ever used the pill had 3.3 times the breast cancer risk of those who had never used this method; the relative risk increased if breast or ovarian cancer occurred more than once among blood relatives. The elevated risk associated with pill use appeared only among women who had taken oral contraceptives during or before 1975; after that year, all oral contraceptives introduced to the market contained less than 50 mcg of estrogen.

The study, which took place between 1991 and 1996, followed up families of 462 women who had had breast cancer diagnosed between 1944 and 1952. Researchers conducted telephone interviews with 6,150 adult relatives of these women: 394 sisters and daughters (first-degree relatives), 3,002 nieces and granddaughters (second-degree), and 2,754 women who had married into the families. Interviews covered participants' cancer history and risk factors for breast cancer, including ever-use of oral contraceptives and the ages at which pill use began and ended.

Overall, 239 participants had had breast cancer—38 sisters and daughters, 115 granddaughters and nieces, and 86 women who had married into families of the original cohort. They had ranged in age from 25 to 83 at diagnosis; the average age was 57 years.

Fifty-one percent of participants had ever used the pill, and 7% were using it at the time of the study. On average, ever-users had taken the pill for seven years. Women who had used oral contraceptives were more likely than never-users to be

premenopausal at interview, less likely to have had an oophorectomy and more likely to have smoked cigarettes; they also were slightly better educated than never-users. First-degree relatives of women with breast cancer were less likely to have used the pill (23%) than were other relatives (51–55%), and they began and ended use at later ages.

In analyses adjusting for age and birth cohort, sisters and daughters who had used the pill had a significantly greater risk of breast cancer than never-users (relative risk, 3.3). Oral contraceptive use did not influence the risk among other relatives of women in the breast cancer cohort. In no relationship category was duration of pill use, age at first use, or duration since either first or last use significantly associated with women's breast cancer risk.

The researchers further examined the effect of pill use in families they classified as high-risk—namely, those in which multiple blood relatives had had breast or ovarian cancer. (They included the latter because mutations in the same genes may affect the risk of both diseases). In the 132 families with three or more occurrences of these diseases, ever-use of the pill was again associated with an elevated breast cancer risk for sisters and daughters (relative risk, 4.6), but not for other relatives. The same pattern was seen among the 35 families in which at least five blood relatives had had breast or ovarian cancer, and the relative risk for first-degree relatives who had used the pill was even higher (11.4). Adjustment for a range of potentially confounding factors—parity; age at first birth, menarche and menopause; oophorectomy; smoking; and educational attainment—had essentially no effect on the results.

Finally, because the amount of hormones contained in oral contraceptives has been substantially reduced since 1975, the researchers examined the risk of breast cancer according to the period in which women used oral contraceptives. To maximize the power of these analyses, the investigators considered participants' closest affected relative rather than their relationship to the woman in the original breast cancer cohort. In these analyses, ever-use of the pill was associated with breast cancer risk only for one group of women: those who had a first-degree relative with breast cancer and who had used the pill before 1975 (relative risk, 3.3).

While the investigators note that their study has several advantages over previous work on the relationship between pill use and breast cancer risk, they also acknowledge that it has limited ability to elucidate the influence of current low-dose oral contraceptive formulations. However, they suggest that women with a first-degree family history of breast cancer who used early formulations of the pill "may want to be particularly vigilant regarding appropriate breast cancer screening practices."

The author of an editorial accompanying the study concludes that high-risk women should avoid the pill, "but at the price of forgoing an attractive option for reducing ovarian cancer risk."[2] These trade-offs, she writes, highlight the need for pill use to be considered on an individual basis, taking into account a woman's particular risks, alternative strategies for reducing the risk of cancer and other benefits of using this method. Clinicians have an important role to play, the editorial concludes, by "helping [women] to evaluate the evidence, with its gaps and uncertainties, in the context of patients' own preferences."—*D. Hollander*

References

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Births at 32–36 Weeks Account for More Infant Deaths Than Earlier Births

Infants born at 32–36 weeks' gestation are considerably less likely to die by age one than are those delivered earlier; nevertheless, according to an examination of population-based data from the United States and Canada, they represent an appreciable share of infant deaths.[1] For the 1995 U.S. birth cohort, infants born moderately preterm (i.e., at 32–33 weeks' gestation) and those born mildly preterm (34–36 weeks) together accounted for 9% of infant deaths. Among Canadian infants who were born in 1992–1994, the corresponding figure was 13%. In both cohorts, these infants accounted for a higher proportion of deaths before age one than babies born at 28–31 weeks. The researchers point out that while most studies of mortality among preterm infants focus on births that occurred at less than 32 weeks' gestation, births at 32–36 weeks are much more common and have an important public health impact.

To assess the infant mortality risks associated with various gestational ages, the investigators used data linking singleton live births and infant deaths for the United States and for all of Canada except Ontario (which was excluded because of problems with data quality). They calculated separate risks for three periods within the first year of life—early neonatal (0–6 days), late neonatal (7–27 days) and postneonatal (28–364 days)—and estimated risks associated with specific causes of death.

In the U.S. cohort, 88% of births were full-term (i.e., occurred at 37 or more weeks' gestation), 8% were mildly preterm, 1% were moderately preterm and 2% occurred at 31 weeks or less. Overall, 7.5 live-born infants per 1,000 died within a year: 4.0 in the early neonatal period, 1.0 in the late neonatal period and 2.6 in the postneonatal period. The Canadian data show similar patterns: Some 93% of infants were born at term, 5% mildly preterm and 1% each moderately preterm or earlier. The infant mortality rate for the Canadian cohort was 6.2 per 1,000 live births. Again, the rate was highest in the first week of life (3.3 deaths per 1,000); it was 0.7 per 1,000 among infants aged 7–27 days and 2.2 per 1,000 in the postneonatal period.

The absolute risk of death per 1,000 live-born U.S. infants rose from 9.2 for those who were mildly preterm to 21.2 for those who were moderately preterm; it climbed to 53.3 among infants born at 28–31 weeks and to 408.5 among those born earlier. Using logistic regression analyses to adjust for mother's age, parity, race and education, the researchers compared the risks between full-term and different categories of preterm infants. Findings from these analyses revealed that mildly preterm infants were three times as likely as those born at term to die within a year (relative risk, 2.9); moderately preterm infants were 6.6 times as likely as full-term babies to die by age one. Relative risks were sharply higher for infants born at 28–31 weeks (16.2) or earlier (126.7). In a result that surprised the researchers, relative risks of death for mildly and moderately preterm infants were higher in the neonatal period than for the remainder of the year.

As expected, the proportion of infant deaths that were attributable to gestational age was highest (36%) for those born before 28 weeks of gestation. It was 7% for those born at 28–31 weeks, 3% for moderately preterm infants and 6% for those who were mildly preterm. The researchers point out that together, moderately and mildly preterm births contributed to a

greater share of infant deaths than births at 28–31 weeks.

The data for Canada show patterns much like those for the United States, although levels of mortality and relative risks differ somewhat between the two countries. Absolute mortality risks rose from 13.3 deaths per 1,000 infants who were mildly preterm to 45.1 per 1,000 who were moderately preterm and 86.4 per 1,000 born at 28–31 weeks, then soared to 506.0 per 1,000 among those born earlier in gestation. The relative risk of dying within a year (adjusted for age and parity) ranged from 4.5 for mildly preterm infants to 15.2 for those who were moderately preterm, 28.8 for infants born at 28–31 weeks and 170.7 for those delivered before 28 weeks of gestation. As in the United States, relative risks were higher in the neonatal period than in the postneonatal period, even for infants who were mildly or moderately preterm.

In all, 27% of infant deaths in Canada were attributable to deliveries before 28 weeks' gestation, and the proportion declined to less than 10% at later gestations. Again, the combined proportion of deaths accounted for by mildly preterm and moderately preterm births (13%) exceeded the proportion represented by births at 28–31 weeks' gestation (7%).

For both cohorts, preterm infants of any gestational age had elevated risks of dying from asphyxia, infection, sudden infant death syndrome and external causes (e.g., abuse and maltreatment). They also accounted for appreciable proportions of deaths due to each of these causes.

According to the researchers, while their results "do not in any way diminish the clinical and public health importance of extremely preterm infants," they illustrate that mildly and moderately preterm births have a "substantial impact at the population level," as well as implications for clinicians. Obstetricians, the investigators suggest, should take the mortality risks associated with these births into account when considering preterm induction of labor or cesarean delivery, while pediatricians may wish to monitor mildly and moderately preterm infants closely even after the babies are discharged from the hospital.—*D. Hollander*

Reference

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