Clinical Digest

Cardiovascular Disease

Percutaneous Coronary Intervention and Quality of Life

The first findings from the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial showed that patients with chronic coronary artery disease (CAD) may expect relief from angina whether they are treated with percutaneous coronary intervention (PCI) plus optimal medical therapy (OMT) or with OMT alone. But adding PCI to the therapy of patients with stable CAD and inducible ischemia didn't significantly reduce the risk of death or myocardial infarction. As the researchers point out, however, "therapeutic procedures are performed not only to prevent events but also to improve health status." The study also found that patients had an incremental benefit from PCI for the first 12 to 24 months in the key domains of physical limitations, frequency of angina, and quality of life.

The researchers randomly assigned 2,287 patients with stable CAD to receive PCI plus OMT or OMT alone. They assessed patients' angina health status, using the Seattle Angina Questionnaire, and overall physical and mental function, using a 36-item survey (RAND-36), periodically for a median of 4.6 years.

At baseline, 22% of patients were free of angina. At three months, 53% of 1,149 in the PCI group and 42% of 1,138 in the OMT group were free of angina. At this point, quality-of-life scores in both groups had risen slightly but significantly—and more so in the PCI group. The benefits seen in the PCI group disappeared by 36 months, however, at which point there were no significant differences between the two groups.

When the patient population was stratified according to baseline angina frequency scores, the third with the lowest scores (indicating multiple weekly episodes of angina) had the greatest improvement over time and the greatest advantage with PCI, and the third with the highest scores (indicating only rare episodes) had no improvement and no advantage with PCI. Additionally, patients who required revascularization early in the trial, researchers say, saw "rapid, dramatic improvements…confirming that some patients have an especially marked benefit from PCI."

The researchers point out that drug eluting stents only became available at the end of the trial and, thus, were used in just 31 study patients. Because drug eluting stents have been shown to reduce the incidence of restenosis, the likelihood of recurrent angina after PCI with a drug eluting stent is less than after PCI with a bare-metal stent. Even so, the researchers note that only a minority of patients who receive bare-metal stents develop restenosis, and only a few of those patients develop angina.

Source: *N Engl J Med.* 2008;359(7):677–687.

Obstetrics

Diabetes and Birth Defects

Diabetes is linked to birth defects, according to findings from a study involving the CDC; University of Utah School of Medicine, Salt Lake City; University of Arkansas for Medical Sciences, Little Rock; University of Texas Health Science Center, Houston; and University of Maryland School of Medicine, Baltimore. But the findings also show that the point at which the mother develops diabetes is important.

The researchers analyzed data from the National Birth Defects and Prevention Study, which involved infants born with no defects (who were chosen at random from birth hospitals or birth certificates) and infants born with one, isolated defect or multiple major defects (who were identified from 10 U.S. birth defect surveillance systems). Defects due to single-gene and chromosome abnormalities were excluded. The investigators found that 24 mothers (0.5%) of 4,895 control infants had pregestational diabetes (PGD), compared with 283 mothers (2.2%) of 13,030 case infants. The prevalence of gestational diabetes (GD) was 3.7% and 5.5%, respectively, for control and case mothers.

PGD was associated with approximately half of the major birth defect categories analyzed: seven of 23 isolated noncardiac defects (including spina bifida and cleft palate), 11 of 16 isolated cardiac defects, 13 of 23 multiple noncardiac defects, and eight of 16 multiple cardiac defects. The researchers found that an estimated 70% of cases of an isolated birth defect were attributable to the mother's PGD—and up to 90% of cases of multiple birth defects were due to maternal PGD.

By contrast, GD was associated with a limited number of birth defects: three of 23 isolated noncardiac defects, three of 16 isolated cardiac defects, three of 23 multiple noncardiac defects, and two of 16 multiple cardiac defects.

Although the mechanisms underlying the associations between diabetes and birth defects are poorly

understood, the researchers say, it is clear that hyperglycemia plays a critical role. They cite research that has found a positive correlation between hyperglycemia during embryogenesis and a risk of congenital malformations. They note that, among women with good glycemic control, the prevalence of birth defects is similar to that in the general population.

In a related study of 71 women with PGD, researchers from Ipswich Hospital, Norwich, United Kingdom found continuous blood glucose monitoring during pregnancy was associated with improved glycemic control in the third trimester, lower birth weight, and reduced risk of macrosomia. The investigators provided 38 women with supplementary continuous glucose monitoring for up to seven days at intervals of four to six weeks between eight and 32 weeks' gestation. (The researchers note that their experience had suggested that women who were farther along in pregnancy had some discomfort using continuous glucose monitoring.) A control group of 33 women received standard antenatal care. The women in the monitoring group were advised to measure blood glucose levels at least seven times per day.

Mean birth weight for the monitoring group was 3,340 g, compared with 3,630 g in the control group. The median birth weight centile was 69 for the monitoring group, versus 93 for the control group. And 30% of infants in the control group were extremely large for their gestational age, compared with 14% in the monitoring group. Rates of macrosomia were lower in the group of women using continuous monitoring—yet these rates were still 3.5 times higher than in the general population.

Two women, one in the monitoring and one in the control group, miscarried. One woman terminated her pregnancy due to trisomy 21. Each group had one early neonatal death: One of a set of twins died of anencephaly and another infant died of Edward syndrome. One living infant in each group had malformations (one cardiovascular in the control group, one chromosomal in the monitoring group).

Sources: *Am J Obstet Gynecol.* 2008;199(3):237.e1–237.e9

BMJ. 2008;337:a1680. doi:10.1136/bmj.a1680.

PREVENTIVE MEDICINE

Keeping the Discussion Going About PSA Tests

Two community-level interventions to promote informed decision making seem to have encouraged more men to talk with their physicians about the prostate-specific antigen (PSA) test—but they have not necessarily prompted the men to actually get tested.

In a five-year study, researchers from RTI International, Research Triangle Park, NC and University of North Carolina at Chapel Hill, Chapel Hill developed, implemented, and evaluated the two programs in four communities in North Carolina. Two of the communities were matched for upper socioeconomic characteristics (SES) and two were matched for lower SES. The PSA-only intervention consisted of educational information about prostate cancer and the PSA test, which was delivered through an oral presentation by a local physician, a video that showed men of similar ages and races to the participants discussing the PSA test, a question and answer session, and a group discussion. The men's health content (MHC) intervention included those same elements plus information about recognizing and preventing heart attack, stroke, and colon cancer. The interventions were conducted through 18 community organizations, and men between ages 40 and 80—who had not been diagnosed previously with prostate cancer—were invited to participate. Participants were asked to complete surveys before (n = 361), immediately following (n = 339), six months after (n = 274), and 12 months after (n = 254) the intervention.

Both interventions increased participants' knowledge of the facts necessary to make an informed decision about PSA testing. By the 12-month follow-up, 59% of men had discussed the PSA decision with their physicians (64% in the PSA-only and 56% in the MHC group), with 58% of them sharing their feelings about the test to some extent during that discussion. There were no differences between socioeconomic groups.

The numbers of men who preferred independent or joint test decisions with their doctor didn't change much. At baseline, about 33% of participants wanted to make the final PSA decision, compared with about 40% at 12 months. Similarly, about 46% at baseline preferred to make a joint decision with their doctors, compared with about 50% at 12 months. There were no significant differences in the desired level of participation in the test decision between economic groups.

Interestingly, participants generally were less likely to plan on getting the test in the year after the interventions. At baseline, 70% intended to get the test, compared with only 56% at 12 months. Moreover, the percentage of men who were unsure whether they wanted to have a PSA test rose from 16% to 29%.

Ultimately, the interventions had little effect on testing behaviors, the researchers say. At baseline, 61% of men had received a PSA test within the past year, as had 63% at the 12-month follow-up.

Source: *Am J Prev Med.* 2008;35(2):87–94.