Framingham Score Underestimates Risk in RA

BY MITCHEL L. ZOLER

PHILADELPHIA — The Framingham risk score does a poor job of estimating future risk for cardiovascular disease events in patients with rheumatoid arthritis, according to a review of 550 unselected patients drawn from the general population.

Results from a second study reported at the annual meeting of the American College of Rheumatology suggested that adding three more risk markers (carotid disease assessment with ultrasound, erythrocyte sedimentation rate, and cumulative steroid dose) to the standard Framingham risk score (FRS) could significantly improve prognostic accuracy for coronary disease in patients with RA. And findings from a third study presented at the meeting indicated that treatment with methotrexate is an effective way to cut coronary disease risk in RA patients.

To assess the prognostic value of the FRS, Cynthia S. Crowson and her associates at the Mayo Clinic in Rochester, Minn., used data collected for the Rochester Epidemiology Project from residents of Olmsted County, Minn. They included 550 people who presented during 1988-2008 with incident RA that matched the 1987 RA criteria of the American College of Rheumatology and who also had no history of cardiovascular disease at the time of their initial RA diagnosis. The researchers calculated an FRS for each of these patients based on their medical records and using a revised FRS (introduced in 2008) that predicted risk for cardiovascular disease events including stroke and peripheral artery disease as well as coronary disease (Circulation 2008;117:743-53). The FRS estimates a person's risk for an event during the subsequent 10 years.

The Mayo researchers then compared the predicted rate of cardiovascular disease events against the actual rate observed during the first 10 years following RA diagnosis. The study group included 491 RA patients who were aged 30-74 years, and 59 others who were aged 75 years or older. The FRS is designed for application to adults younger than 75 years.

Among the 341 women aged 30-74 years, the average predicted event rate was 5%, and the actual observed rate was 11%. Among the 150 men in this age range, the predicted rate was 12% and the observed rate was 26%, Ms. Crowson, a biostatistician at the Mayo Clinic, reported in a poster. The researchers used a regression model to calculate a standard incidence ratio, in which the ratio of actual to expected events was 79% in women and 56% in men. Both differences were statistically significant. Further analysis showed that the largest differences between observed and expected rates were in women aged 55 years or older and in men aged 45 or older.

Although the FRS is not designed for use in people older than 74 years, Ms. Crowson and her associates applied the same analysis to the 59 RA patients in this age group. The results again showed a significant excess of observed events over expected events. In women, the observed event rate was 57%, compared with an expected 14% rate. In men, the observed rate was 87%, compared with an expected rate of 37%.

Adding three more risk markers to the standard Framingham risk score could significantly improve prognostic accuracy for coronary disease in patients with rheumatoid arthritis.

The findings "underscore the need for [a more] accurate tool to predict the risk of cardiovascular disease in RA patients," the researchers concluded. They had no financial relationships to disclose.

One way to improve cardiovascular risk assessment in RA patients may be to add additional risk factors to the FRS. A poster presented by Dr. Inmaculada del Rincon, a rheumatologist at the University of Texas Health Sciences Center in San Antonio, and her associates explored one way to do this. They compared the correlation between standard FRS assessment and an enhanced assessment model for predicting the risk of acute coronary syndrome events in 599 RA patients. None of the patients in the study had a history of cardiovascular disease at the time the study began. During an average 5 years of follow-up, 66 patients had acute coronary syndrome events.

To enhance the predictive power of the FRS, they added measures of carotid plaque and intima-media thickness by carotid ultrasonography, erythrocyte sedimentation rate, and cumulative glucocorticoid dose. The analysis showed that the standard FRS accounted for 70% of the events observed in the patients. The three additional risk markers boosted this rate to 76%, a statistically significant improvement, reported Dr. del Rincon and her associates in their poster.

A third poster at the meeting reviewed the ability of treatment with methotrexate to reduce cardiovascular risk in RA patients. Dr. Janice Gupta, a rheumatologist at Tufts Medical Center in Boston, and her associates reviewed the medical literature for studies that compared the ability of methotrexate to lower cardiovascular events against other RA treatments. They identified six studies published during 2002-2007 that made this comparison. The studies involved a total of about 162,000 RA patients. The results showed a consistent pattern of reduced cardiovascular events in the patients who received methotrexate. The event risk was generally reduced by 15%-20%, compared with other RA treatments; the researchers did not calculate an overall summary risk-reduction rate. ■

Disclosures: *None of the researchers had financial conflicts of interest.*

Congenital Heart Disease May Pose Risk After Pregnancy

BY MITCHEL L. ZOLER

VITALS

Major Findings: Women with congenital heart disease had a 12% rate of late cardiac events after pregnancy. The strongest independent risk factor for such an event was a cardiac event before or during pregnancy.

Data Source: Analysis of 318 women, with a total of 405 deliveries, at one center in Toronto.

Disclosures: Dr. Balint and her associates had no financial disclosures to report.

ORLANDO — During long-term follow-up after pregnancy, women with congenital heart disease had a 12% rate of late cardiac events in a series of 318 patients followed at one center for a median of 2.6 years.

The analysis also identified four clinical factors that flagged women with congenital heart disease who faced the highest risk for a late event (starting more than 6 months after delivery). Women with one of these risk factors had a 27% rate of long-term cardiac events, women with more than one had a 47% rate, whereas women with none of them had an 8% rate, Dr. Olga H. Balint said at the annual scientific sessions of the American Heart Association.

"We can use this data to discuss with patients" the risk they face from pregnancy, said Dr. Balint, a physician in the pregnancy and heart disease research program at the University of Toronto. The findings highlight the significance of cardiac events that occur before or during pregnancy, a factor that raised the risk for a late event by 2.5-fold independent of any other risk. "It's important to take into account a pregnancy event. These patients are most likely to need intervention after pregnancy."

The other three significant independent risk factors for late cardiac events were as follows:

► Subpulmonary ventricular dysfunction, pulmonary regurgitation, or both, which conferred a 3.4-fold independent increased risk for a late event.

► Subaortic ventricular dysfunction (a left ventricular ejection fraction of less than 40%), which produced an independent threefold increased risk.

► Left heart obstruction, which linked with a 2.5-fold increased risk.

The late events, which occurred following 50 of the total 405 deliveries, were most frequently arrhythmia, with pulmonary edema as the next most common event. Three late events were cardiac arrest or death, and one was a stroke. This 12% rate of late cardiac events matched the 12% rate of cardiac events that preceded pregnancy and the 11% rate during pregnancy.

The analysis did not address how the late event rate in these women following pregnancy compared with the event rate that similar women with congenital heart disease would have had if they did not become pregnant, Dr. Balint noted. The women in the Toronto series had an average age of 28, and 66% were nulliparous prior to the index pregnancy. Dr. Balint stressed that parity was not a significant univariate risk factor for late cardiac events nor was it a significant risk factor in the multivariate analysis.

The most common congenital disease in the series was a shunt lesion, in 87 women, followed by tetralogy of Fallot in 70, aortic coarctation in 52, and congenital aortic stenosis in 45. The analysis did not include assessment of the treatment the women received during or after pregnancy. The pregnancies in the series occurred during 1995-2007.

These findings have increasing relevance to U.S. practice because the number of American women with congenital heart disease who became pregnant steadily rose during 1998-2006, according to data reported in a poster at the meeting.

Using data from nearly 38 million pregnant U.S. women hospitalized during that period and collected by the Nationwide Inpatient Sample, Dr. Omar K. Siddiqi and his associates found that during those 9 years the number of deliveries from women with congenital heart disease rose steadily by an overall 26%, reaching roughly 3,500 deliveries in both 2005 and 2006. The rate of increase was disproportionate to the rise in number of U.S. adults with congenital heart disease, which increased by about 11% during the same period.

Pregnant U.S. women with congenital heart disease during the study period matched their pregnant counterparts without congenital disease by their average age (27 years), but their risk for peripartum complications or death was far higher, said Dr. Siddiqi, a physician at the University of Pennsylvania in Philadelphia, and his associates. During the 9 years studied, pregnant women with congenital heart disease had a 22-fold increased risk for heart failure, an 11-fold increased risk for arrhythmia, a 31-fold increased risk for stroke, and a 12-fold increased risk for death, compared with pregnant women without congenital heart disease. ■