

Infant Age, Sex Tied to Mortality After Heart Repair

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STOCKHOLM — Researchers were surprised to find striking gender differences in 30-day mortality when they analyzed 30,036 cardiac procedures in the European Association for Cardio-Thoracic Surgery's Congenital Database.

Neonatal girls were significantly more likely to die than were boys in the same age group, Dr. Matthias Siepe reported at

a meeting of the association. Female mortality was 14% (319 deaths reported from 2,280 procedures) and male mortality was 12% (407 deaths out of 3,377 procedures).

When children were older than 1 year, however, the advantage was reversed. Boys had higher mortality, 2.3% (182 deaths out of 7,840 procedures), compared with girls, 1.8% (123 deaths out of 6,977 procedures).

Dr. Siepe, a resident in cardiovascular

surgery at the University Hospital in Freiburg, Germany, said the investigators could offer no explanation for the change, but had started a multivariate analysis to search for underlying reasons.

"We asked, are females more prone to diagnoses that might be lethal? But ... that is not the case," he said at the meeting, which was held with the European Society of Thoracic Surgeons.

In an attempt to localize the effect, the investigators performed an analysis of the

top 10 procedures. This turned up only one surgery, correction of coarctation, that was associated with a gender difference. Mortality was 3.5% in girls, compared with 1.6% in boys.

Among neonates, despite the higher death rate in girls, boys had more hypoplastic left heart syndrome, which contributed significantly to mortality in this age group.

Dr. Siepe said the investigators did not find a significant global difference between girls and boys overall. The girls had a 30-day mortality of 4.8% (659 deaths out of 13,780 procedures). For the boys, it was 5.1% (837 deaths out of 16,256 procedures).

Poland was the only country in which the investigators reported an overall gen-

The SEARCH FOR SELECTIVITY in Atrial Fibrillation

Atrial-selective ion channel blockade may reduce the risk of ventricular complications in atrial fibrillation.

Ion channels play a crucial role in cardiac electrophysiology.^{1,2} Sodium channels control cell depolarization, the beginning of an action potential.¹ A variety of potassium channels then return the cell to its resting state through repolarization.²

In atrial fibrillation, electrical remodeling of the atria occurs such that repolarization is accelerated and the atrial action potential duration and refractory period are shortened.^{3,6} This results in the disruption of the normal depolarization/repolarization cycle of atrial cells.⁷

Among the many different potassium channels in the atria and ventricles, only **Kur (ultra-rapid delayed rectifier potassium channel)** is predominantly active in the atria.^{1,5,8-11} The Kur channel has not been found to be expressed in the ventricles^{1,5,8-11}; therefore, selective action on this channel in the atria may reduce the risk of ventricular proarrhythmias.^{8,10}

Astellas Pharma US, Inc., is exploring the *selective* blockade of Kur in the atria in order to gain a better understanding of the different pathways involved in atrial fibrillation.

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DR. SIEPE

der difference. Boys had higher mortality, 4.4%, than girls, 2.7%, according to the report.

Asked whether smaller weight at birth could account for higher mortality in neonatal girls, compared with neonatal boys, Dr. Siepe said correcting for weight reduced the gap but did not eliminate it.

In an interview after the talk, he described the difference in neonatal mortality as "even more astonishing" when compared with mortality in infants who are premature but healthy. "In prenatal births in intensive care units, ordinarily premature girls are stronger when they are born," he said.

While the results are intriguing, he said the differences are small and have no practical meaning unless the researchers can determine the underlying causes. "But if we go into more detail and find mechanisms why female neonates are more prone to die, we may be able to treat these mechanisms and make our therapy better," he said. ■

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