Minority children waiting for heart transplants have higher death rates

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Minority children awaiting a donor heart for transplant have a higher death rate than white children, even after controlling for clinical risk factors, according to research presented at the American Heart Association's Scientific Sessions 2008.

In a study conducted by researchers in Boston, waitlist mortality was 14 percent for white children, 19 percent for black, 21 percent for Hispanic and 27 percent for others awaiting heart transplants.

Researchers based their study on data from the United Network of Organ Sharing for all U.S. children on the waiting list for a heart transplant during an eight-year period ending in 2006. Of the 3,299 children, 58 percent were white, 20 percent were black, 16 percent were Hispanic, 3 percent were Asian and the remaining 3 percent were listed as other.

After controlling for age, listing and health status, researchers said:

-- Black children had a 60 percent greater chance of dying.
-- Hispanics had a 50 percent higher mortality rate.
-- Asians and others had a 100 percent to130 percent greater chance of dying.

The children were similar in listing status, percent of patients either on ventilators or heart/lung machines and those with pre-formed antibodies that might affect the likelihood that a suitable heart would be found for

them.

Socioeconomic variables explained only a small fraction of this increased risk, accounting for a third of the difference in blacks and 20 percent of the increased risk in Hispanics.

While disparities in access and use of organ transplantation are well known in adults, the researchers said their study is the first to examine these issues in children listed for heart transplant.

After further adjusting for medical insurance and area household income, the risk of death remained higher for all nonwhite races, with a 40 percent increase for blacks and Hispanics and a more than 100 percent increase for Asians and others.

Black and Hispanic children lived in areas (zip codes) with lower median incomes ($33,352 and $37,516, respectively) than children from white families (area median income $43,077). Black and Hispanic children also were more likely to have Medicaid insurance (58 percent and 59 percent) compared to 24 percent of white children.

The most common reasons that children require heart transplants are serious congenital heart defects in children under the age of 1 and cardiomyopathy in those over the age of 10 years. These conditions tend to be equally distributed in children 1-10 years old. Cardiomyopathy is a serious disease in which the heart muscle becomes inflamed and doesn't work as well as it should.

"We were interested in finding the risk factors for death while awaiting a heart transplant in children listed for transplant," said T. P. Singh, M.D., lead author of the study and Assistant Professor of Pediatrics at Harvard Medical School and a pediatric cardiologist with Heart Failure and Transplant Service in Children's Hospital Boston.

"We realized that if you simply divide them into two categories of white and nonwhite, those who weren't white had a higher risk of dying."

Because low socioeconomic position and fewer resources adversely influence health, medical insurance (Medicaid versus private) and zip code median income were used to control for socioeconomic factors. When all factors including race, area income and insurance were simultaneously considered, children with Medicaid insurance were 20 percent more likely to die while awaiting transplant, Singh said.

Furthermore, there didn't appear to be any difference in risk of death on the waitlist between white and minority children who were the sickest of the group and were being supported on ECMO (extra-corporeal membrane oxygenation). But race remained a factor for those who were less ill, he said. "It could be that some of these children are being treated in regions or facilities where the waitlist mortality is higher."

Race remained a factor in most comparisons in the study, Singh said. "It is possible nonwhite children deteriorated more rapidly after listing or that those nonwhite parents preferred not to go to advanced therapies. The data raises these questions without providing answers."

While race remains a significant factor, the study doesn't allow researchers to understand all of the mechanisms involved in the higher mortality rates in nonwhite children, Singh said. "We need more studies to determine what is causing this."

Until further studies are conducted, Singh recommends healthcare providers taking care of children with heart failure should be aware of these disparities.

"While this study raises the possibility that race and socioeconomic disparities may explain the mortality differences in children on the

transplant waitlist, more research is needed to look for additional explanations. Cultural factors that may have influenced patients', or in this case parents' willingness to accept the need for transplantation could be playing a role in the differences that were observed. Another related possibility might be delays in listing patients for transplantation due to problems in physician-patient communication," said American Heart Association President Timothy J. Gardner, M.D.

Source: American Heart Association