Down syndrome, Wolff-Parkinson-White syndrome and Bicuspid Aortic Valve
February 23, 2014 at 12:57pm
We were sent a question about Down syndrome and Wolff-Parkinson-White (WPW) syndrome and Bicuspid Aortic Valve.

WPW is a heart condition in which there is an extra electrical pathway in the heart. The electrical activity of the heart follows specific pathways but in WPW there is an extra pathway and this can be associated with abnormal heart rhythms. The pathway is present at birth and can be associated with other congenital heart problems.

Bicuspid aortic valve is an abnormality of the aortic valve. When blood is pumped out of the heart it goes through the aortic valve into the aorta. The aortic valve then closes to prevent the backflow of blood into the heart. With the next heart pump, it opens again, then closes, etc. with each heartbeat. The aortic valve typically has 3 "leaflets". In bicuspid aortic valve the valve only has two. Most often a bicuspid aortic valve doesn't cause any symptoms at least for many years. It does, however, put the individual at risk for developing aortic stenosis (narrowing of the aortic valve that limits blood flow out of the heart) and aortic insufficiency (abnormal opening of the valve that allows the blood to flow backwards into the heart).

Although the incidence of congenital heart defects is high in infants with Down syndrome, I could not find any definite information that demonstrates that WPW or Bicuspid Aortic Valve are more common in people with Down syndrome. However, the studies are most commonly done on infants and sometimes these 2 conditions are not detected until later in life. Hopefully further study of adults will give us more information.

We have provided some links below for further review.

Wolff-Parkinson-White Syndrome
http://www.mayoclinic.org/diseases-conditions/wolff-parkinson-white/basics/causes/con-20043508

Bicuspid aortic valve