

OSF heart surgeon pioneers pumping solution for children (Broadcast)

Living with Fontan circulation

INTRO:

WHEN A CHILD IS BORN WITH ONLY ONE FUNCTIONING HEART VENTRICLE – A CONDITION KNOWN AS SINGLE VENTRICLE CONGENITAL HEART DISEASE – A SERIES OF SURGERIES CAN REROUTE BLOOD FLOW TO HELP THEM SURVIVE. THE FINAL OPERATION – CALLED THE FONTAN PROCEDURE – ALLOWS CHILDREN TO GROW INTO ADULTHOOD. BUT OVER TIME – THIS CIRCULATION... WHICH DEPENDS ON BLOOD FLOWING PASSIVELY TO THE LUNGS WITHOUT A PUMPING CHAMBER... CAN LEAD TO SERIOUS COMPLICATIONS.

TAKE VO

DR. HARMA TURBENDIAN – A CONGENITAL PEDIATRIC HEART SURGEON AT OSF HEALTHCARE CHILDREN'S HOSPITAL OF ILLINOIS – IS WORKING TO CHANGE THAT. HIS INNOVATIVE RESEARCH EXPLORES HOW LIVING DONOR HEART TISSUE COULD BE USED TO CREATE A PUMPING MECHANISM FOR FONTAN PATIENTS... POTENTIALLY IMPROVING BLOOD FLOW AND REDUCING LONG-TERM RISKS.

THE IDEA STEMS FROM AN EARLIER MEDICAL BREAKTHROUGH... CALLED PARTIAL HEART TRANSPLANATION... WHICH ALLOWS SURGEONS TO USE LIVING DONOR VALVES FROM HEARTS THAT CAN'T BE TRANSPLANTED IN FULL. THE INNOVATION – FIRST DEVELOPED BY ONE OF DR. TURBENDIAN'S COLLEAGUES AT ARKANSAS CHILDREN'S HOSPITAL... OPENED THE DOOR TO USING VIABLE HEART TISSUE FOR OTHER PURPOSES. HIS IDEA IS CALLED CAVOATRIAL PARTIAL HEART TRANSPLANT. THE GOAL IS TO TRANSFORM THE RIGHT ATRIUM FROM A DONOR HEART INTO A PUMPING TUBE... USING IT DURING OR AFTER FONTAN SURGERY TO HELP BLOOD FLOW MORE EFFICIENTLY TO THE LUNGS.

TAKE SOT | DR. HARMA TURBENDIAN | CONGENITAL PEDIATRIC HEART SURGEON | OSF HEALTHCARE CHILDREN'S HOSPITAL OF ILLINOIS

"There are a lot of people around the world trying to figure out instead of having the blood flow be passive, like after a Fontan procedure, can we put a pump in the area, and help kids with single ventricle congenital heart disease? And could this help mitigate the bad side effects of that type of physiology?" Dr. Turbendian discusses.

VO TAG

WITH SUPPORT FROM THE TEAM AT JUMP TRADING SIMULATION & EDUCATION CENTER... AND RESEARCH FUNDING FROM OSF CHILDREN'S HOSPITAL OF ILLINOIS... DR. TURBENDIAN BEGAN TESTING THE IDEA USING BOTH PIG TISSUE AND HUMAN CADAVERS. AT A RESEARCH LAB IN ARKANSAS – HIS TEAM CONNECTED DONOR ATRIAL TISSUE TO A CARDIOPULMONARY BYPASS CIRCUIT... WHICH IS AN EXTERNAL DEVICE THAT ACTS LIKE THE HEART AND LUNGS. THE RESULTS... WERE PROMISING.

THE RIGHT ATRIAL TISSUE DEMONSTRATED THE ABILITY TO BEAT... AND COULD EVEN BE PACED EXTERNALLY WITH A PACEMAKER. DR. TURBENDIAN'S FINDINGS WERE PUBLISHED IN THE ANNALS OF THORACIC SURGERY SHORT REPORTS... AN INTERNATIONAL PEER-REVIEWED JOURNAL OF CARDIOTHORACIC SURGERY. THE PUBLICATION MARKS A SIGNIFICANT STEP IN VALIDATING THE CONCEPT... AND SETS THE STAGE FOR FUTURE STUDIES.