



Department of Paediatric Cardiology and Congenital Heart Disease

When the German Heart Centre Munich was founded in 1974 the idea of diagnosing and treating any illness of the heart in any age was unique in the world and was copied by many hospitals in several countries afterwards.

The Department of Paediatric Cardiology and Congenital Heart Disease cares for patients with congenital heart defects from fetus to the adult and is one of the most active centres in Europe. Head of the Department is Prof. Dr. John Hess, who is Medical Director of the hospital and Chairman of the Hospital Board as well.

State of the art diagnosis and treatment are offered to 8.000 patients (6.000 outpatients and 2.000 inpatients) every

year. More than 600 cardiac catheterizations in two digital biplane catheterization laboratories are done every year, 40 % of which are therapeutic interventions like balloon dilatation and/or stent implantation of stenotic valves (aortic and pulmonic), vessels (pulmonary arteries, coarctation of the descending aorta), closure of atrial septal and ventricular septal defects as well as persisting ductus arteriosus.

"Simple" congenital lesions like ventricular septal defects, atrial septal defects not suitable for intervention, atrioventricular septal defects and hypoplastic left heart syndroms are diagnosed by echo only and surgically managed the surgeons without diagnostic

catheterization. Transesophageal echocardiography in complex lesions pre- and intraoperatively is one of the topics in the echolab. 9000 transthoracic and 500 transesophageal examinations were done in 2002.

550 patients - more than 200 younger than one year - are operated on every year. All preoperative diagnosis is done in the Department of Paediatric cardiology and Congenital Heart disease including ultrafast computer tomography and magnetic resonance imaging if necessary. Immediately after the operation patients are treated in the intensive care unit of the paediatric department - with fully equipped 16 beds the largest one in Germany.



Specific achievements of the department

- **Interventional cardiac catheterization (repair)**
Balloon dilation of aorta and pulmonary valves, angioplasty and "stenting" of pulmonary artery stenosis and descending aorta, catheter device closure of the atrial septal (ASD) and ventricular septal defects (VSD), closure of aortopulmonary collateral vessels, coronary artery fistula and patent ductus arteriosus (PDA)
- **Echocardiography**
Fetal echocardiography (with 3-D reconstruction), transthoracic and transesophageal echocardiography (TTE)
- **Electrophysiology**
Mapping of all primary and secondary atrial arrhythmia with the CARTO system, ablation of atrial and ventricular tachycardia in hearts with complex cardiac defects, for instance after Fontan operations or after transposition of the great arteries (TGA)
- **Paediatric Cardiac Surgery**
Every type of reconstructive and palliative cardiac surgery, including the Norwood palliation, staged univentricular heart palliation, correction of anomalous left coronary artery from the pulmonary artery (ALCPA), Fallot' tetralogy in neonates or infants less than one year of age, AV septal defects, reconstructive surgery of Ebstein's anomaly as well as the Ross operation (also neonatal)

Specific tasks of the German Heart Centre as a university clinic:

- educational courses for medical students
- basic research in the molecular biological laboratory
- clinical long term follow up studies after specific treatment of congenital heart disease, studies on myocardial performance and myocardial perfusion



As children are not just little adults a warm and familial nursing atmosphere is provided on the two standard wards. 21 beds are reserved for neonates, infants and school children - 4 rooms are specially equipped for mother and baby nursing. On the other ward 11 beds are presented for older children as well as adults in 5 single (hotel standard) and two three bed rooms. In both wards, specially trained nurses care for mothers, fathers and their children. All beds are fully equipped with ECG monitor, including o-2 saturation and can be supervised centrally.

Psychosocial support is provided by one specialised nurse and two psychologists who care not only for the patients but also for the parents in their difficult situation before or after the operation. A teacher helps school children individually so that education can be continued in case of a longer hospital stay. In the hospital area there are two apartment houses with 27 apartments for parents and other family members located.

The Department of Paediatric Cardiology and Congenital Heart Disease is

located on the third floor with all three wards (48 beds in total), two cath labs and two echolabs. The outpatient department as well as the administration are situated on the ground floor.

A 24 hours service for acute help is provided all over the year - emergency catheterizations or cardiac surgery can be done at any time. The medical staff consists of 39 medical doctors, of whom eleven are senior staff member, 14 junior staff member, but all fully trained specialists and 14 interns and fellows in training.

As part of the Technical University of Munich there are widespread research activities: Basic research in the field of pulmonary hypertension and its molecular regulation, acute inflammatory disease in children after bypass operation and capillary leak syndrome, departmental research with special interest in myocardial perfusion and cellular metabolism in congenital heart disease, haemodynamic and morphologic correlation in univentricular hearts, and specific cardiovascular monitoring on the ICU.



Prof. Dr. John Hess

Director of the Department of Paediatric Cardiology and Congenital Heart Disease

Interview

Is it different to treat children?

Oh, yes. It is very important to gain the child's trust, otherwise the treatment has little chance of being successful. Adults cooperate because they know that it is necessary for their health. Children only cooperate if they trust the doctor.

Are children better patients?

For me, children are the more interesting patients because they are more honest than adults. If an adult does not like a doctor or a nurse, usually he or she will not say anything. Children do not try to fool you, they do not lie and they are more reliable.

How do you win the trust of children?

I am also honest. If a child gets an injection, one frequently hears the parents say "that does not hurt, you do not have to cry." But naturally it does hurt. If one notices that a child is afraid of the injection, one should show that one knows it and try to alleviate some of the fear with a good argument. You cannot demand the child to be stronger than it is.

May there be psychological damage if a child spends a long time in hospital?

Yes, that may be possible. We need more psychologists and specialised teachers to care for these children. The government and the insurance companies do not provide us with sufficient funds for these needs. Still, we have

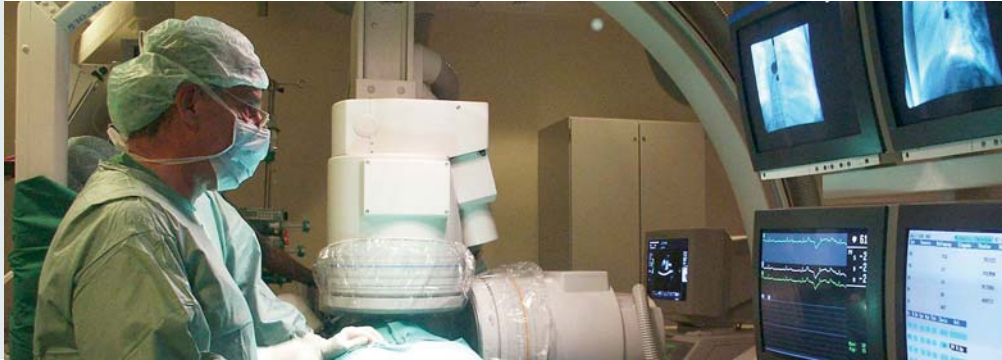
hired two psychologists and two specialised teachers.

Sometimes clowns hop around the wards...

Yes, those are our hospital clowns, real clowns, that come once a week to cheer up the children. When the children laugh, they forget that they are sick. But we also have toys and even computers for the older children.

Do parents also provide support for their children?

Essentially, yes. But one aspect is frequently overlooked; if a three-year-old child repeatedly has to suffer and the mother is present, the child may feel somehow abandoned and think that his mother is not protecting him.



Naturally, the parents should be there, but it can be counterproductive.

The heart of a newborn is about as big as a walnut. Is it possible to work precisely with such a small organ?

Yes, that is difficult, especially cardiac catheterisation. Without being able to see anything in the groin, one has to puncture two little vessels that are thinner than a matchstick. The catheters are passed through the vein and artery to the heart. One has to be very careful and watch out for resistance. Of course, this can be learned, but one should have some talent.

You have three children yourself. What goes through the mind of parents on learning that their child has

a heart defect?

They experience a shock. In this situation, most parents do not understand the medical aspects of what we try to explain. You have to give them time to get over the initial shock. Our doctors regularly take part in communication courses where I play the part of a mother or father of a child with a heart defect.

What are the causes of congenital cardiac defects?

We know very little. The heart develops between the fourth and seventh week of pregnancy. If the mother has a viral infection such as measles during this time, a heart defect can occur. A second cause is a genetic defect. Still, we only know the cause in about 25% of the cases. We are working on it.

What goes through your mind when you cannot help a child?

The worst case is when a child dies of a viral infection of the heart muscle, not a congenital defect; a completely healthy child suddenly dies. This is a catastrophic event, not only for the parents but for me as well. But thank God, such diseases are rare.

The death rate in the Department for Paediatric Cardiology is less than three percent...

...this is unique in Germany. There are only five departments in the world with such a low rate. But more interesting to me is that later the children can lead normal lives. I want to discharge healthy children with a long life expectancy.