The 4th AAPCHS Annual Meeting

AAPCHS
Asian Association for Pediatric and Congenital Heart Surgery

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Venue Seoul Dragon City (http://sdc-club.com/ko)
Meeting President Woong-Han Kim
Meeting Host Organization Korean Society of Congenital and Pediatric Heart Surgery

Surgical and Postoperative Considerations for TOF Patients Who Undergo Correction at Old Age

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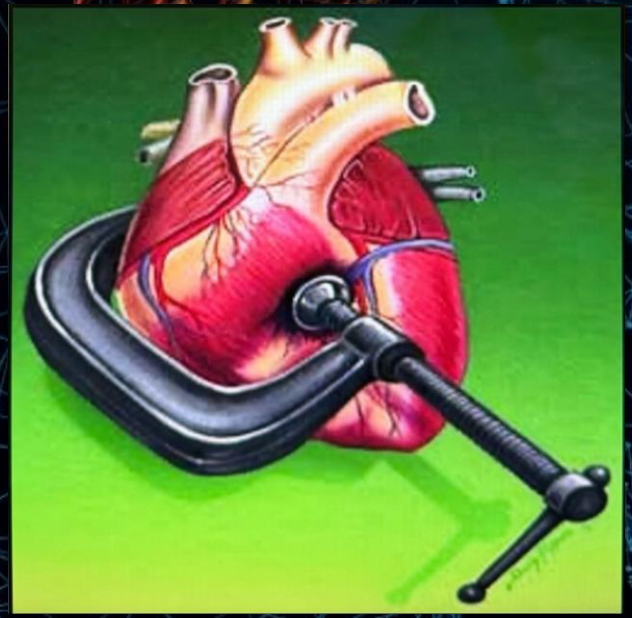
Surgical Repair of Tetralogy of Fallot



When should patients be repaired?

Natural History

- 2/3 reach one year
- ½ reach 3 years
- ¼ reach 10 years
- Rate of attrition is about 6.4% per year with 11% alive at age of 20, 6% alive at age of 30 and 3% at age of 40
- Survival beyond that is uncommon but not rare

➢ OUR POLICY

- Symptomatic patients are repaired at presentation irrespective of age, unless they have a “reason” for palliation.
- Asymptomatic usually referred for elective repair at 4-6 months of age.
- Very selective utilization of shunting, PDA stents, RVOT dilation or stenting.
- Small aorto pulmonary collaterals are ignored, larger ones are coil embolized prior to surgical correction.

Cardiac surgery at an older age may be required for various reasons:

- Patients “simply” presented late
- Patients with conditions not diagnosed or not considered severe enough to require surgery in childhood
- Patients with prior palliation
- Patients with prior repair and residual or new hemodynamic complication

For TOF patients presenting late….

- The indications for operation and surgical techniques do not differ significantly from those used in children.
- However, there are some special risk factors that have to be taken into consideration.

Added Risks

- Complex anatomy and physiology
- Previous intervention? Shunts
- Ventricular hypertrophy

  Chronic volume and pressure overload

  - Ventricular dysfuntion
  - Poor chamber compliance
  - Low cardiac output

Added Risks

- Arrhythmias
- Systemic effects of chronic cyanosis
  - difficult hemostasis
  - renal dysfunction
- Lung reperfusion injury

SURGICAL CONSIDERATIONS

- ✓Older patients may have raised PA pressure despite severe RVOTO. This can be due to either chronic cyanosis or LV dysfunction.

This does not preclude repair but it increases the risk!

- ✓Progressive aortic root dilation is recognized and may lead to AR
- ✓Venous collateral usually exist and can make sternal entry “bloody”

Patients with chronic cyanosis have increased risk to perioperative myocardial injury

- The cyanotic patient is more sensitive to the damaging effects of free oxygen radicals
- The acquired collateral circulation may involve coronary arterial tree and result in washout of cardioplegia
- Increased pulmonary venous return leads to ventricular distension
- Presence of ventricular hypertrophy adds to the difficulty of providing adequate myocardial protection

To overcome this!

- Adequate venting of the heart
- More frequent administration of cardioplegia solution
- May have to use low flow hypothermic CPB

There is an ongoing risk of sudden death presumably arrhythmic

0.5 - 6%

The risk of sudden death increases after the first 20 years from repair

1.2 - 2.2% at 10 - 20 years

4 - 6% at 25 - 30 years

Risk Factors for Sudden Death After Repair of Tetralogy of Fallot

Georg D. A. Nollert, MD, Sabine H. Däbritz, MD, Michael Schmoeckel, MD, Calin Vicol, MD, and Bruno Reichart, MD

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Background. Sudden cardiac death remains the most common cause of death after repair of tetralogy of Fallot. It has been suggested that sudden cardiac deat to right ventricular hypertrophy or dilation. is uncertain whether the preoperative patie operative techniques predispose for sudd death.

Methods. From 1958 to 1977, 658 patients repair of tetralogy of Fallot at our institution age of 12.2 ± 8.6 years. One third had a previous palliative operation 4.6 ± 2.5 years total of 490 patients survived the first postope and were analyzed for sudden cardiac death follow-up period of 25.3 ± 5.8 years (range, years), 42 patients died, and 15 (36%) of th were as a result of sudden cardiac death.

Results. Actuarial 10-year, 20-year, and 30-ye rates were 97%, 94%, and 89%. Freedom fr cardiac death was 99%, 98%, and 95% after 10 years. The risk of sudden cardiac death increased after 10 years from 0.06%/y to 0.20%/y. Univariate predictors ($p <$

Conclusions. The most important risk factors for sudden cardiac death were higher preoperative New York Heart Association class and no previous palliation. Thus, early surgical intervention is recommended. The risk of sudden cardiac death increases with time, suggesting that long-term follow-up by specialized cardiologists or pediatricians should be intensified. However, all patients who died suddenly had at least two risk factors at the time of surgery.

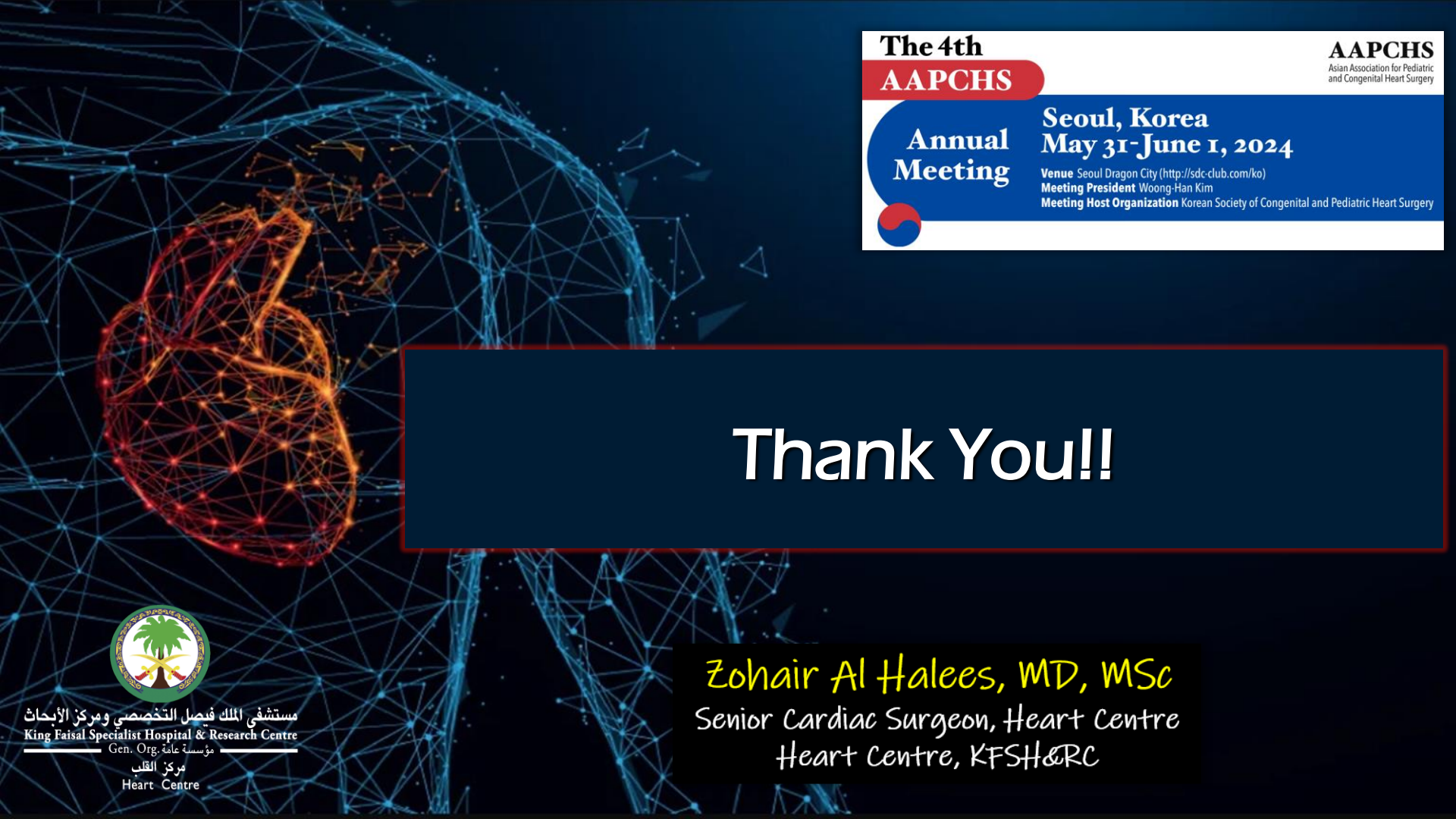
(Ann Thorac Surg 2003;76:1901–5)

OUTCOMES

- Survival of operated patients is excellent

Over 30 year survival is around 85%

However, older age at repair is consistently associated with decreased survival.



Thank You!!

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