**Design Study**

**Focus on ICMR in patients under 18 years old**

**Objective:**

1. Fate of artificial ring (classic Carpentier-Edwards) in long-term
2. Answer 2 questions:

- Small ring can lead to mitral stenosis in mid-term?

- Without ring the rate of residual/recurrent mitral regurgitation seem to be higher?

**Preliminary Results:**

N = 119 patients

Only one type of artificial ring using in this study: classic complete CE

Compare 2 group :

* group 1 with size 22, 24 # small size n1 = 35
* group 2 with size 26, 28, 30 # normal or large size n2 = 43

7 cases without ring CE or band (excluded)

No operative mortality. Redo 25 cases were as follow :

* 16/78 cases (20.5%) with classic CE ring

+ Redo caused by Mitral Stenosis (MS)= 14/78(17.9%); Mean time redo = 147.3 ± 64months (range from 29-235)

+ Redo caused by Mitral Regurgitation (MR)= 2/78 (2.5%), p = 0.001

* 7/34 cases (20.5%) with posterior band

+ Redo caused by MS = 1 (2.9%)

+ Redo caused by MR = 6/34 ( 17.6%) ; Mean time redo = ± months,

p < 0.0001.

Long-term results and focus on

1. Effect of the ring to stabilize and to reduce MR recurrent/residual
2. “Side effect” of the ring: may lead to functional mitral stenosis when children grow up.

Proven by:

+ the rate of MR recurrent between 2 group with or without ring annuloplasty

+ the gradient transmitral immediate post-operation and last FU or at redo

echocardiography at rest only, no at peak exercise (limitation of study).

+ increase of the gradient trans-mitral progressively (every 5 years)

A target mean mitral gradient ≤ 5 mm Hg following repair was considered acceptable.

All patients were performed with median sternotomy, conventional cardiopulmonary bypass, and myocardial protection with cold blood cardioplegia. Annuloplasty sizing was identical if a band or a ring was implanted and corresponded to the intertrigonal distance. In some cases, ring oversizing was performed thanks to extension of the anterior leaflet by autologous pericardium.

Define mitral stenosis according to guideline: mitral surface ≤ 0.6-1cm2/m2 Body Surface Area (BSA) or mean transmitral gradient ≥ 10-12mmHg[8, 9]. Define mitral regurgitation according to guideline [8, 9].

***Flowchart of study***

ICMR repair in children

N = 119

Redo cause by MR n = 2

N=

Redo cause by MS n = 1

References

* Chan KL, Chen S-Y, Mesana T, Lam BK, Development of mitral stenosis after mitral valve repair: Importance of mitral valve area, Canadian Journal of Cardiology (2017), doi: 10.1016/ j.cjca.2017.08.027 [20% MS developed after repair for degenerative MR and its adverse effects on exercise capacity: a series of 110 patients in the long-term follow-up ]

References

* Chan KL, Chen S-Y, Mesana T, Lam BK, Development of mitral stenosis after mitral valve repair: Importance of mitral valve area, Canadian Journal of Cardiology (2017), doi: 10.1016/ j.cjca.2017.08.027 [20% MS developed after repair for degenerative MR and its adverse effects on exercise capacity: a series of 110 patients in the long-term follow-up ]

References

* Chan KL, Chen S-Y, Mesana T, Lam BK, Development of mitral stenosis after mitral valve repair: Importance of mitral valve area, Canadian Journal of Cardiology (2017), doi: 10.1016/ j.cjca.2017.08.027 [20% MS developed after repair for degenerative MR and its adverse effects on exercise capacity: a series of 110 patients in the long-term follow-up ]

N=

No ring, no band

n = 7

Annuloplasty with posterior band n = 34

Annuloplasty with CE

ring n = 78

Redo cause by MR n = 6

N=

Redo cause by MS n = 14

N=