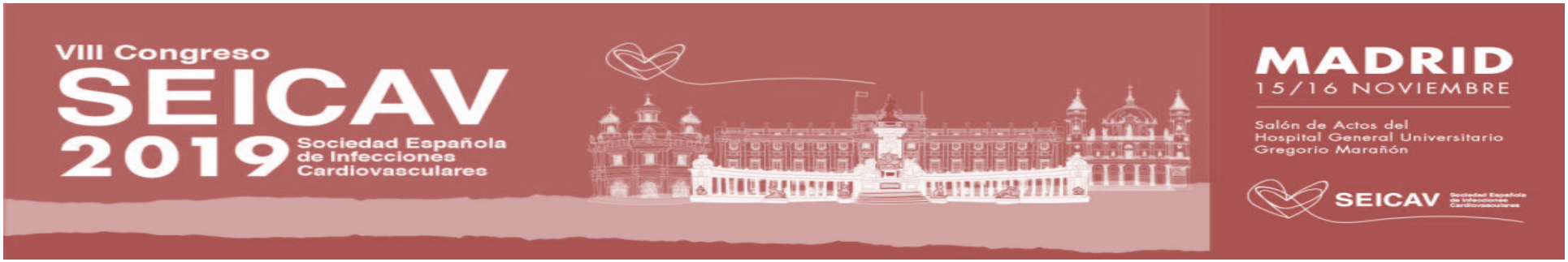
Ponente: **Carlos – A. Mestres**

Pregunta

10. ¿Son las nuevas válvulas pulmonares más susceptibles a la infección?



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nuevo, va

Del lat. *novus*.
Sup. irreg. novísimo; reg. nuevísimo

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RAE 23 edición

1. adj. Recién hecho o fabricado.
2. adj. Que se percibe o se experimenta por primera vez.
3. adj. Repetido o reiterado para renovarlo.
4. adj. Distinto o diferente de lo que antes había o se tenía aprendido.
5. adj. Que sobreviene o se añade a algo que había antes.
6. adj. Recién incorporado a un lugar o a un grupo. *Es nuevo en el colegio.*
7. adj. Principiante en una profesión o en alguna actividad.
8. adj. Dicho de un producto agrícola: De cosecha recentísima, en oposición al almacenado de cosechas anteriores. *Patatas nuevas. Trigo nuevo. Maíz nuevo.*
9. adj. Dicho de una cosa: Que está poco o nada deteriorada por el uso, por oposición a *viejo*.
10. adj. joven (|| de poca edad). *Perdices nuevas. Conejos nuevos.*
11. f. noticia (|| información).

¿De qué hablamos?

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1. La válvula pulmonar nativa

La endocarditis infecciosa sobre válvula pulmonar nativa es rara

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CURRICULUM IN CARDIOLOGY

Isolated pulmonic valve infective endocarditis: A diagnostically elusive entity

Randal S. Cassling, M.D., William C. Rogler, B.S., and
Bruce M. McManus, M.D., Ph.D. *Omaha, Nebr.*

Am Heart J 1985; 109(3 Pt 1):558-567

Endocarditis sobre válvula pulmonar
1.1% en autopsia

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medicina

MDPI

Article

Surgical Treatment of Infective Endocarditis in Pulmonary Position—15 Years Single Centre Experience

Daina Liekiene *, Laurynas Bezuska, Palmyra Semeniene, Rasa Cypiene, Virgilijus Lebetkevicius, Virgilijus Tarutis, Jurate Barysiene, Kestutis Rucinskas and Vytautas Sirvydis

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Medicina **2019**, *55*, 608; doi:10.3390/medicina55090608

Enero 2003 – Diciembre 2017

Intervenidos por EI	**293**
Intervenidos por EIP	**8 (2.7%)**
Congénitos	**6**
No congénitos	**2**

Surgical treatment of right-sided infective endocarditis

Check for updates

James C. Witten, BA,[a] Syed T. Hussain, MD,[b] Nabin K. Shrestha, MD,[c] Steven M. Gordon, MD,[c] Penny L. Houghtaling, MS,[d] Faisal G. Bakaeen, MD,[b] Brian Griffin, MD,[c] Eugene H. Blackstone, MD,[b,d] and Gösta B. Pettersson, MD, PhD[b]

(J Thorac Cardiovasc Surg 2019;157:1418-27)

Methods: From January 2002 to January 2015, 134 adults underwent surgery for right-sided infective endocarditis. Patients were grouped according to predisposing condition. Hospital outcomes, time related death, and reoperation for infective endocarditis were analyzed.

Results: A total of 127 patients (95%) had tricuspid valve and 7 patients (5%) pulmonary valve infective endocarditis; 66 patients (49%) had isolated right-sided infective endocarditis, and 68 patients (51%) had right- and left-sided infective endocarditis. Predisposing conditions included injection drug use (30%), cardiac implantable devices (26%), chronic vascular access (19%), and other/none (25%). One native tricuspid valve was excised, 76% were repaired or reconstructed, and 23% were replaced. Intensive care unit and postoperative hospital stays were similar among groups. Injection drug users had the best early survival (no hospital mortality), and patients with chronic vascular access had the worst late survival (18% at 5 years). Survival was worst for concomitant mitral valve versus isolated right-sided infective endocarditis or concomitant aortic valve infective endocarditis. Survival after tricuspid valve replacement was worse than after repair/reconstruction. Estimated glomerular filtration rate was the strongest risk factor for death, not predisposing condition. Eleven patients underwent 12 reoperations for infective endocarditis; more reoperations occurred in injection drug users ($P = .03$).

2. Las prótesis en posición pulmonar

Las fuentes

* Casos clínicos
* Estudios retrospectivos
* Meta-análisis
* Estudios prospectivos

¿Qué substitutos valvulares?

Válvulas de implante quirúrgico

- Homoinjertos pulmonares
- Conducto de vena yugular bovina Contegra (Med
- Bioprótesis con soporte (Carpentier-Edwards,…)
- Bioprótesis sin soporte (Medtronic Freestyle)

Válvulas de implante percutáneo

- Melody (Medtronic)
- Sapien (Edwards Lifesciences LLC)

Conducto BioPulmonic™ BiointegralConducto Contegra®

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Homoinjerto pulmonar (Banco de Tejidos Hospital Clinic - B

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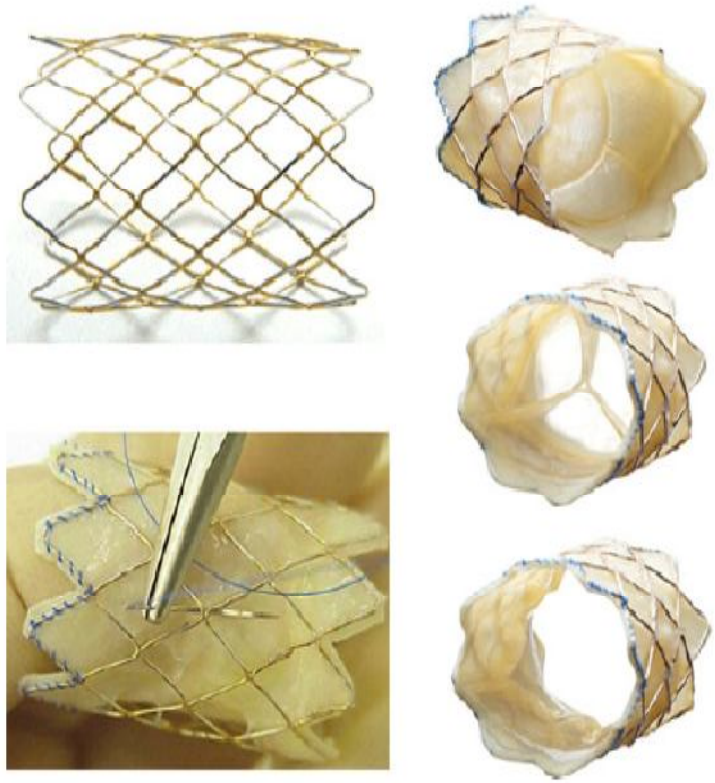

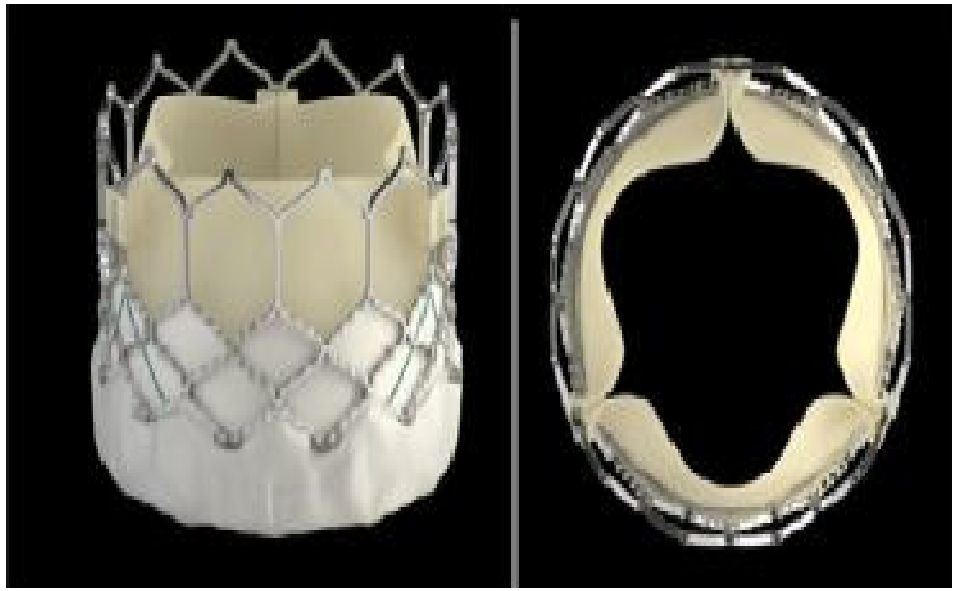

Válvula Melody® (Medtronic) **Válvula Sapien S3® (Edwards)**

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Problemas

* Poblaciones de tamaño reducido
* Baja incidencia en comparación con el lado izquier
* Bibliografía dedicada escasa

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Percutaneous pulmonary valve implantation in patients with right ventricular outflow tract dysfunction: a systematic review and meta-analysis

Liyu Ran*, Wuwan Wang*, Francesco Secchi, Yajie Xiang, Wenhai Shi and Wei Huang

Ther Adv Chronic Dis
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Table 1. Characteristics of the included studies.

Studies	Country	Patients/ attempted	Mean follow up (months)	Age (y)	Type of study	Valve	Diagnosis of TOF, *n* (%)	Primary indication		
								PR	PS	Mixed
Fraisse[20]	France	64/NA	55.2	21.4 ± 16.7	P, MC	Melody	32 (50)	7	14	43
Eicken[21]	Germany	102/NA	12	21.5 ± 10.3	P, MC	Melody	60 (58.8)	18	36	48
Batra[22]	US	150/NA	6	21.7 ± 11.5	P, MC	Melody	NA	NA	NA	NA
Kenny[23]	US	34/36	6	30.3 ± 15.1	P, MC	Edwards	16 (47)	19	15	2
Secchi[24]	Italy	40/NA	12	21 ± 8	RP, MC	Melody	12 (30)	17	12	11
Promphan[25]	Thailand	6/23	6	18.5 ± 3.4	P, SC	Venus P-valve	6 (100)	6	0	0
Fiszer[26]	Poland	46/NA	35.2	18.3 ± 6.9	P, MC	Melody Edwards	18 (39)	28	18	0
Butera[27]	Italy	61/63	30	24 ± 40	P, MC	Melody	27 (44.2)	12	21	30
Pagourelias[28]	Belgium	20/NA	3	13.9 ± 9.2	P, SC	Melody	20 (100)	100	0	0
Müller[29]	Germany	59/NA	6	22.2 ± 8.7	P, MC	Melody Edwards	30 (50.8)	13	46	0
Armstrong[30]	US	101/120	12	19.9 ± 9.7	P, MC	Melody	47 (46.5)	52	16	32
Cheatham[31]	US	150/167	54	19 ± 11.5	P, MC	Melody	77 (51.3)	80	39	31
Coats[32]	UK	16/17	3	21.2 ± 8.7	P, SC	Melody	8 (50)	17	0	0
Hass[33]	Germany	22/NA	5.7	21.7 ± 19.3	P, SC	Edwards	11 (50)	11	2	9
Lurz[34]	UK	155/163	28.4	21.2 ± 16	P, SC	Melody	94 (60.6)	46	61	44
Lurz[35]	UK	65/NA	12	20.4 ± 13.1	P, SC	Melody	41 (63.1)	30	35	0
Lurz[36]	UK	17/NA	1	19.2 ± 6.1	P, SC	Melody	9 (52.9)	8	9	0
Borik[37]	Canada	51/NA	54	20.2 ± 10.8	RP, SC	Melody	33 (64.7)	2	16	31
Wilson[38]	Canada	25/NA	42	34 ± 8.9	RP, MC	Edwards	15 (60)	7	8	10
Harrild[39]	US	31/NA	6	19.8 ± 7.65	RP, SC	Melody	18 (58)	13	18	0

MC, multicenter; NA, not available; P, prospective; PI, pulmonary insufficiency; PR, pulmonary regurgitation; PS, pulmonary stenosis; RP, retrospective; RVOT, right ventricular outflow tract; SC, single center; TOF, tetralogy of Fallot; US, United States.

Pacientes = 1238

Table 2. Pooled estimates for procedure success and complications.

	Number of studies	Pooled estimate (%)	I^2	*p* value
Procedure success	17	99 (98–99)	0	0.904
Reintervention[a]	12	5 (4–6)	82.9	0
Surgical conversion[a]	9	3 (2–5)	0	0.716
Stent fracture[a]	13	5 (4–6)	89.4	0
Endocarditis[a]	12	2 (1–4)	21.3	0.235
Coronary compression[a]	10	1 (0–2)	0	0.557
Death[a]	12	1 (1–2)	0	0.763

[a]Denotes incidence at latest follow up.

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Transcatheter Pulmonary Valve Implantation: A Comprehensive Systematic Review and Meta-Analyses of Observational Studies

Arka Chatterjee, MD; Navkaranbir S. Bajaj, MD, MPH; William S. McMahon, MD; Marc G. Cribbs, MD; Jeremy S. White, MD; Amrita Mukherjee, BDS, MPH; Mark A. Law, MD

Background—Transcatheter pulmonary valve implantation is approved for the treatment of dysfunctional right ventricle to pulmonary artery conduits. However, the literature is limited because of a small patient population, and it does not reflect changing procedural practice patterns over the last decade.

Methods and Results—A comprehensive search of Medline and Scopus databases from inception through August 31, 2016 was conducted using predefined criteria. We included studies reporting transcatheter pulmonary valve implantation in at least 5 patients with a follow-up duration of 6 months or more. In 19 eligible studies, 1044 patients underwent transcatheter pulmonary valve implantation with a pooled follow-up of 2271 person-years. Procedural success rate was 96.2% (95% confidence intervals [CI], 94.6–97.4) with a conduit rupture rate of 4.1% (95% CI, 2.5–6.8) and coronary complication rate of 1.3% (95% CI, 0.7–2.3). Incidence of reintervention was 4.4 per 100 person-years overall (95% CI, 3.0–5.9) with a marked reduction in studies reporting ≥75% prestenting (2.9 per 100 person-years [95% CI, 1.5–4.3] versus 6.5/100 person-years [95% CI, 4.6–8.5]; $P<0.01$). Pooled endocarditis rate was 1.4 per 100 person-years (95% CI, 0.9–2.0).

Conclusions—Our study provides favorable updated estimates of procedural and follow-up outcomes after transcatheter pulmonary valve implantation. Widespread adoption of prestenting has improved longer-term outcomes in these patients.
(*J Am Heart Assoc*. 2017;6:e006432. DOI: 10.1161/JAHA.117.006432.)

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Table 3. Pooled Estimates for Outcomes in Follow-up

Parameter	No. of Studies	Events/ 100 PY	Lower CI	Upper CI	I^2	*P* Value
Death	19	0.6	0.3	0.9	0.0	0.95
Stent fracture	14	4.4	2.4	6.3	79.7	0.00
Type 2/3 stent fracture	15	1.3	0.5	2.0	53.3	<0.01
Patients requiring reintervention	19	4.4	3.0	5.9	51.4	<0.01
Catheter re-interventions	19	2.7	1.7	3.7	44.7	0.02
Surgical reintervention	19	1.7	1.2	2.2	0.0	0.56
Endocarditis	19	1.4	0.9	2.0	11.9	0.31
TPV specific endocarditis	19	0.6	0.3	0.9	0.0	0.70
Endocarditis requiring explantation/ death/reintervention	19	0.6	0.3	0.9	0.0	0.88

Cardiology in the Young (2017), **27**, 294–301
doi:10.1017/S1047951116000494

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Original Article

Infective endocarditis following Melody valve implantation: comparison with a surgical cohort

Clare O'Donnell, Rhonda Holloway, Elizabeth Tilton, John Stirling, Kirsten Finucane, Nigel Wilson

Green Lane Paediatric and Congenital Cardiac Service, Starship Children's Hospital, Auckland, New Zealand

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Implantes Melody

25 pacientes

Table 1. Melody percutaneous pulmonary valve implant patient characteristics.

	n or Median (range)
Age (years)	18 (11–51)
Weight (kg)	68 (47–109)
Male/female	15/10
BMI (kg/m^2)	22.3 (18.6–40.9)
Diagnosis	
Tetralogy of Fallot variants	16
Truncus arteriosus	6
Post Ross procedure	3
RV-PA conduit type	
Homograft	23
Other (Hancock 22 and 29)	2
Conduit size at implant	22 (16–29)*
Conduit post implant age (years)	14 (3–35)

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4/25 16%

Table 4. Comparison of the Melody group: endocarditis cases and unaffected.

	Unaffected (n = 21)	Endocarditis (n = 4)	p
Age (years)	20 (17–26)	14.5 (14–16.5)	0.031
Male	11 (52%)	4 (100%)	
Previous endocarditis	1 possible	None	
Peak gradient post-implant (mmHg)	Median 9 (2–21)	9, 10, 15, 17	0.527
Peak gradient at last review	Median 24 (13–46)	16, 24, 36, 40	0.503
Implant for stenosis/mixed*	16 (76%)	3 (75%)	
High-pressure dilation	18 (86%)	2 (50%)	0.10
Conduit age (years)	Median 16 (3–35)	6, 9, 12, 13	0.05
Hx Ross procedure	1 (5%)	2 (50%)	0.01
Conduit type**			
Aortic homograft	5	0	
Pulmonary homograft	12	4	
Hancock valve	2	0	

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Table 5. Surgical pulmonary valve implant patient characteristics (n = 178).

	n or Median (range)
Age (years)	16 (0–61)
Weight (kg)	54.6 (5.3–132)
Male/female	112/66
BMI (kg/m^2)	20.6 (11.3–42.7)
Diagnosis	
Tetralogy of Fallot variants*	133
Truncus arteriosus	10
Pulmonary valve disease**	13
Rastelli procedure	12
Ross procedure	4
Pulmonary atresia (intact septum)	4
Miscellaneous	2
RV-PA conduit type	
Hancock	79
Homograft	48
Mosaic	17
Biopulmonic	11
Freestyle	9
Elan	9
Contegra	5

Octubre 2009 – Mayo 2015

Seguimiento medio 2.9 años (IQR 1.6 – 5.4)

Endocarditis en las prótesis quirúrgicas

4/178 2.2%

Conductos Hancock	**2**
Biopulmonic	**1**
Medtronic Mosaic porcina	**1**

Enterococcus
S. Aureus
Aggregatibacter actinomycetemcomitans
H. parainfluenzae

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Original Article

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Prosthetic pulmonary valve and conduit endocarditis in congenital heart disease

Fernando Rebollal-Leal[1], Raúl Felipe-Abella[2], Francisco Gutierrez-García[3], Carlos A. Mestres[4] and Victor Bautista-Hernandez[5,6]

Abstract

Background: Pulmonary valve replacement is one of the most common procedures in patients with congenital heart disease. Little is known about prosthetic valve endocarditis in this population.

Objectives: To review management and outcomes of pediatric and adult patients with a prosthetic pulmonary valve or right ventricle-to-pulmonary artery conduit infective endocarditis.

Methods and results: A multiinstitutional cohort of 10 patients is reported. Median age at endocarditis was 24 years (range 8–41 years). The most common causative organisms were *Staphylococcus* ($n = 4$) and *Streptococcus* species ($n = 2$). In addition to medical treatment, 5 patients required surgery. Majors complications such as renal damage, life-threatening hemoptysis, and septic shock were observed. No patient died in hospital or during follow-up.

Conclusions: Pulmonary prosthetic valve endocarditis is a rare condition associated with significant morbidity and a high risk of requiring operative intervention. Larger studies are required to optimize the management.

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	Age (years) sex	CHD	Age at previous surgeries	Type of valve (mm)	Risk factor for IE	Pathogen
1	8 Female	DTGA-VSD	(3 years) arterial switch – VSD closure	Homograft (16)	Dental treatment	*Streptococcus viridans*
2	13 Female	DORV-VSD-CoA	(0 years) Rastelli (4 years) RV-PA conduit replacement	Homograft (18)	No	*H. influenzae*
3	18 Female	PA-VSD	(9 years) RV-PA conduit replacement and VSD closure (15 years) RV-PA conduit replacement	Homograft (16)	No	*Staphylococcus epidermidis*
4	27 Female	PA-VSD-PFO	(0 years) Right BTS (1 year) Left BTS (5 years) Bilateral BTS closure + VSD-PFO closure + extracardiac RV-PA homograft conduit	Homograft	No	*Pseudomonas aeruginosa*
5	16 Female	DTGA-VSD	(0 years) Rashkind (0 years) Rastelli (2 years) Shelhigh #19 and VSD closure (8 years) Soprano 22	Soprano 22	No	*Staphylococcus aureus*
6	35 Female	TOF	(4 years) AP fistula (10 years) Total correction (33 years) Pulmonary valvuloplasty (34 years) Soprano	Soprano 22	Surgical site infection	*Candida albicans*
7	41 Male	TOF	(9 years) Total correction (41 years) PVR (Freestyle 25), tricuspid annuloplasty and VSD closure	Freestyle 25	No	*Staphylococcus epidermidis*
8	26 female	TOF	(1 year) Right BTS (2 years) Total correction (19 years) PVR (Freestyle 27)	Freestyle 27	No	*Streptococcus mitis*
9	33 female	IAC-PS	(3 years) IAC closure and pulmonary valvulotomy (27 years) PVR St. Jude 21	St. Jude 21	No	*Coxiellaburnetii*
10	26 female	PA-VSD	(4 years) Total correction (monostruc 23) (11 years) Contegra 22 (14 years) PVR St. Jude 21	St. Jude 21	Pacemaker generator change and atrial lead implant (3months)	*Staphylococcus epidermidis*

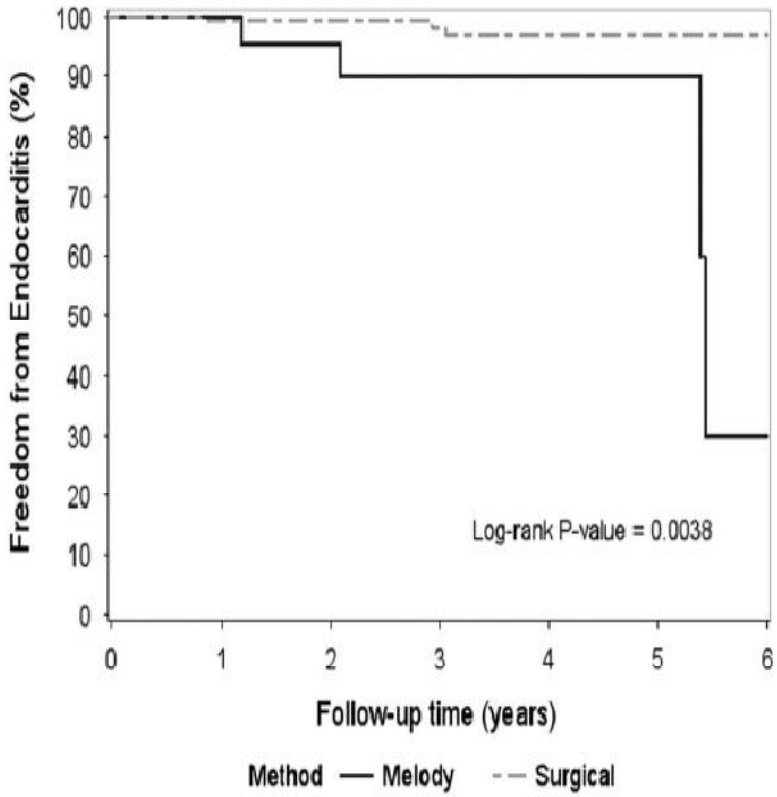

Figure 3.

Kaplan–Meier survival curves depicting the probability of survival free from endocarditis in the Melody and surgical conduit groups.

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ORIGINAL ARTICLE

Infective endocarditis of a transcatheter pulmonary valve in comparison with surgical implants

Ine Van Dijck,[1] Werner Budts,[2] Bjorn Cools,[1] Benedicte Eyskens,[1] Derize E Boshoff,[1] Ruth Heying,[1] Stefan Frerich,[3] Ward Y Vanagt,[3] Fls Troost,[2] Marc Gewillig[1]

Heart 2015;**101**:788–793. doi:10.1136/heartjnl-2014-306761

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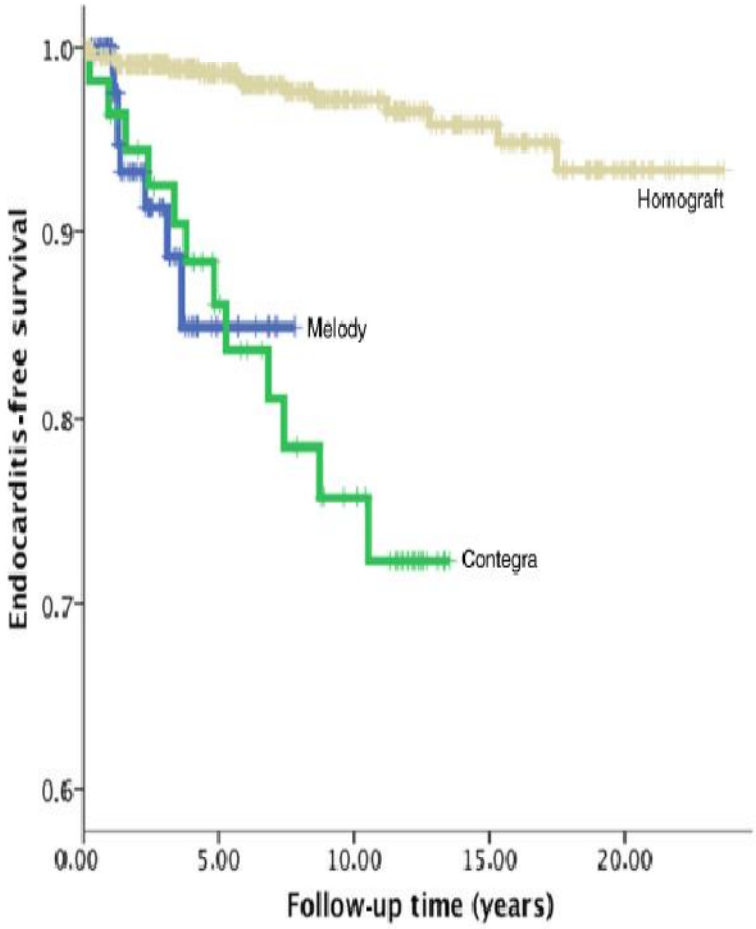
Table 1 Demographic and diagnostic details after Melody, Contegra and homograft conduit implantation

Implantation	Melody (n=107)	Contegra (n=54)	Homograft (n=577)
Age, years, median (range)	14.3 (4–80)	9.9 (0–47)	13.3 (0–60)
Men	71 (66.4%)	33 (61.1%)	351 (60.8%)
Primary cardiac diagnosis			
Tetralogy of Fallot	56 (52.3%)	25 (46.3%)	264 (45.8%)
Ross repair	20 (18.7%)	10 (18.5%)	170 (29.5%)
Pulmonary stenosis	8 (7.5%)	1 (1.9%)	49 (8.5%)
Arterial trunk	8 (7.5%)	13 (24.1%)	54 (9.4%)
Miscellaneous	15 (14.0%)	5 (9.3%)	40 (6.9%)
Endocarditis	8 (7.4%)	11 (20.4%)	14 (2.4%)

FU 1.3 (IQR 1.2; 1.1.-3.6)



Probabilidad de sobrevida sin Endocarditis

Table 3 Statistical analysis of significant correlations

	Univariate			*Multivariate*		
	Exp[B]	CI	p Value	Exp[B]	CI	p Value
Age	0.965	0.931 to 1.001	0.056			
Gender	4.615	1.621 to 13.136	0.004	4.464	1.567 to 12.719	0.005
Melody	10.261	3.896 to 27.023	<0.001	9.738	3.677 to 25.786	<0.001
Homograft			<0.001			<0.001
Contegra	8.664	3.803 to 19.736	<0.001	8.690	3.821 to 19.762	<0.001

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Table 3 Statistical analysis of significant correlations

	Univariate			*Multivariate*		
	Exp^{β}	CI	p Value	Exp^{β}	CI	p Value
Age	0.965	0.931 to 1.001	0.056			
Gender	4.615	1.621 to 13.136	0.004	4.464	1.567 to 12.719	0.005
Melody	10.261	3.896 to 27.023	<0.001	9.738	3.677 to 25.786	<0.001
Homograft			<0.001			<0.001
Contegra	8.664	3.803 to 19.736	<0.001	8.690	3.821 to 19.762	<0.001

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The risk of bacterial endocarditis after percutaneous and surgical biological pulmonary valve implantation

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ABSTRACT

Objective: This single center study compared the risk of bacterial endocarditis (BE) after surgical and percutaneous pulmonary valve implantation.

Methods: Between Jan 1st 2010 and Dec 31st 2015 all patients who received a biological pulmonary valve (surgical/interventional) were identified. The clinical follow-up was analyzed with regard to BE applying the modified Duke criteria and echocardiographic findings.

Results: We identified 246 patients who underwent a biological pulmonary valve implantation. The mean age was 15.9 years, (SD 12.7, Median 13.1). There were 166 surgical patients (67.5%), with 55 homografts (22.4%, mean diameter 27.4 mm), 106 Contegra® grafts (43.1%, mean diameter 17.4) and 5 Hancock® valves (2.0, mean diameter 25.6 mm) and 80 percutaneous pulmonary valve implantations (PPVI) (32.5%) with 51 Edwards Sapien® valves (20.7%, mean diameter 25.2 mm) and 29 Melody® valves (11.8%, mean diameter 21.9 mm). Patients with a bovione jugular conduit as the biologiocal substrate had an increased risk for BE and patients with Melody® valves had the highest risk for BE that was 5–8 times higher as compared to other valves. BE episodes were detected in 5/106 Contegras® (4,7%, 1.5 per 100 person-years), and in 6/29 of the Melody® valves (20.7%, 4.8 per 100 person-years). There were no cases of BE in patients treated with Edwards Sapien®, homografts or Hankock® valves.

Conclusion: Whereas homografts and Edwards Sapien® valves seem to have a very low risk of BE, this risk is increased in Contegra® conduits and in Melody® valves.

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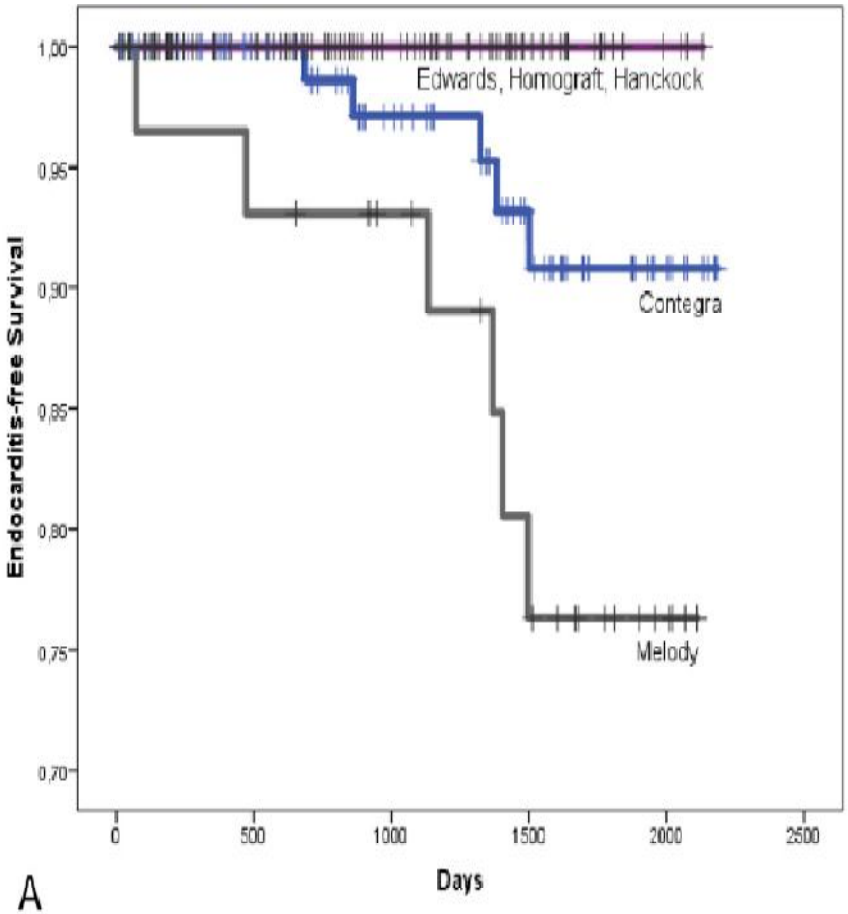
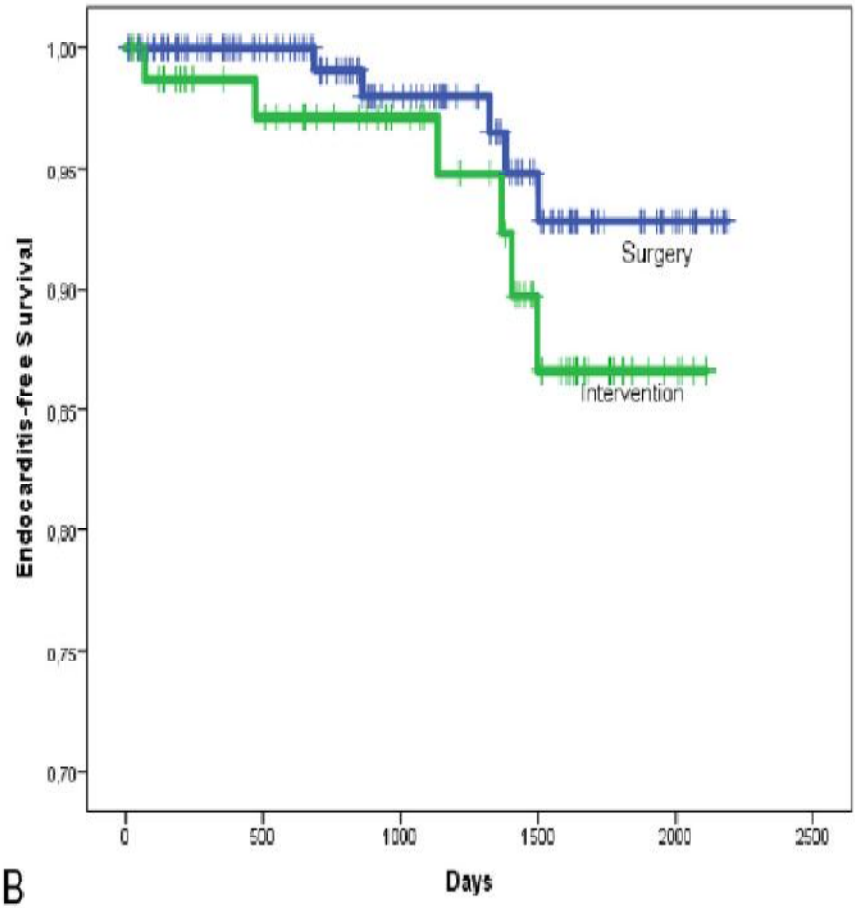
Table 4
Univariate and multivariate analysis for the different risk factors for bacterial endocarditis.

Univariate			
	Exp (B)	CI	p-Value
Melody	4.985	1.507–16.487	0.008
Truncus	4.179	1.223–14.286	0.023
Height	0.194	0.040–0.928	0.040
Contegra	0.915	0.279–3.003	0.883
Age	0.938	0.865–1.017	0.122
Weight	0.977	0.950–1.005	0.104
Male	0.641	0.195–2.100	0.462
Diameter	0.891	0.782–1,015	0.081
Intervention	2.08	0.634–6.831	0.226
Other diagnoses	1,521	0.194–11.905	0.690





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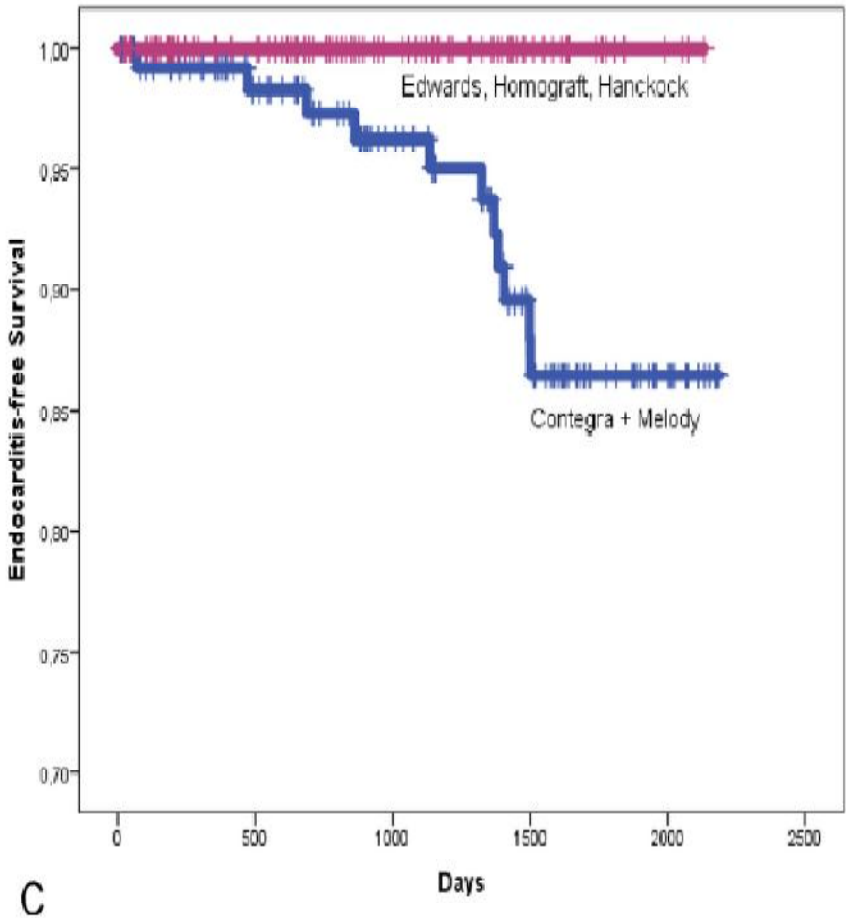

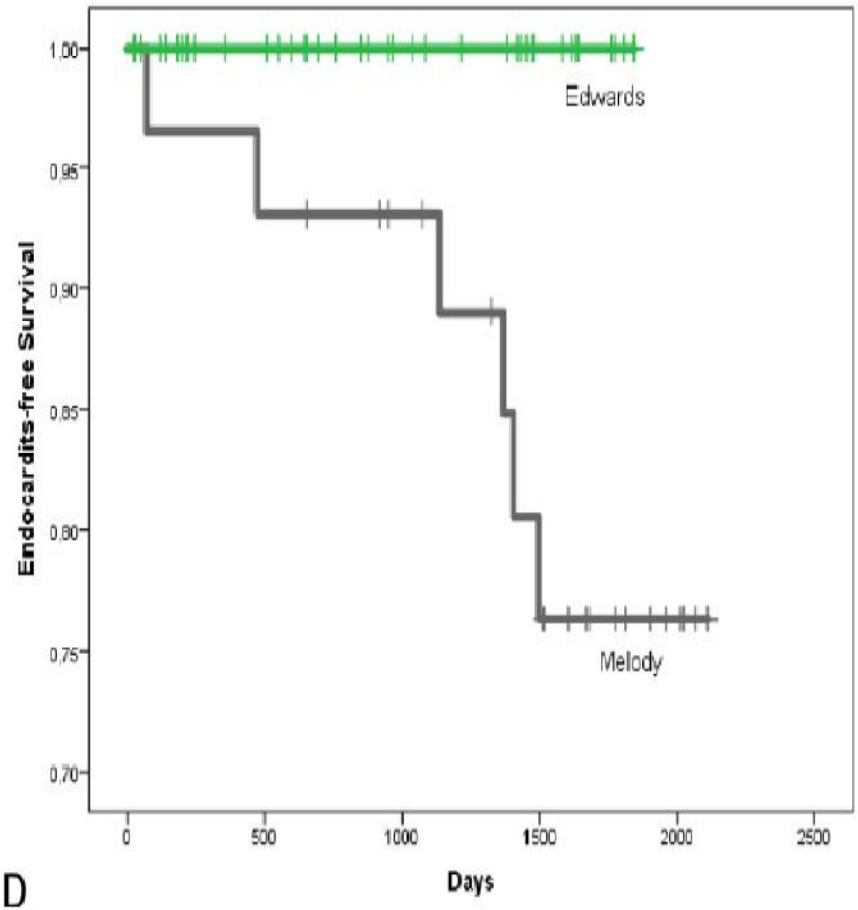

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Infective endocarditis in right ventricular outflow tract conduits: a register-based comparison of homografts, Contegra grafts and Melody transcatheter valves

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RESULTS: Annualized incidence rates of IE in homografts, Contegra grafts and Melody valves were 0.40% (0.40 cases per 100 patient-years), 0.97% and 6.96% 1 year and 0.27%, 1.12% and 2.89% 5 years after valve implantation. Hazard ratios (HRs) were 3.20 [95% confidence interval (CI) 0.91-11.17, $P = 0.069$] for Contegra grafts and 11.89 (95% CI 2.91-48.48, $P < 0.001$) for Melody valves compared to homografts.

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Table 2: Baseline characteristics

	Homograft (n = 259)	Contegra (n = 109)	Melody (N = 64)	Melody in homograft (n = 49)	Melody in Contegra (n = 15)
Categorical measures					
Male gender	149 (58)	55 (51)	42 (66)	31 (63)	11 (73)
Other prostheses[a]	37 (14)	8 (7)	7 (11)	6 (12)	1 (7)
Infective endocarditis	5 (2)	5 (5)	7 (11)	4 (8)	3 (20)
≥2 previous conduits[b]	10 (4)	2 (2)	17 (27)	11 (22)	6 (40)
Continuous measures					
Age (years)[c]	20 (7–41)	7 (1–14)	20 (14–33)	22 (14–40)	16 (11–20)
Conduit size (mm)	22 (20–24)	18 (16–22)	22 (20–22)	22 (20–22)	22 (18–22)

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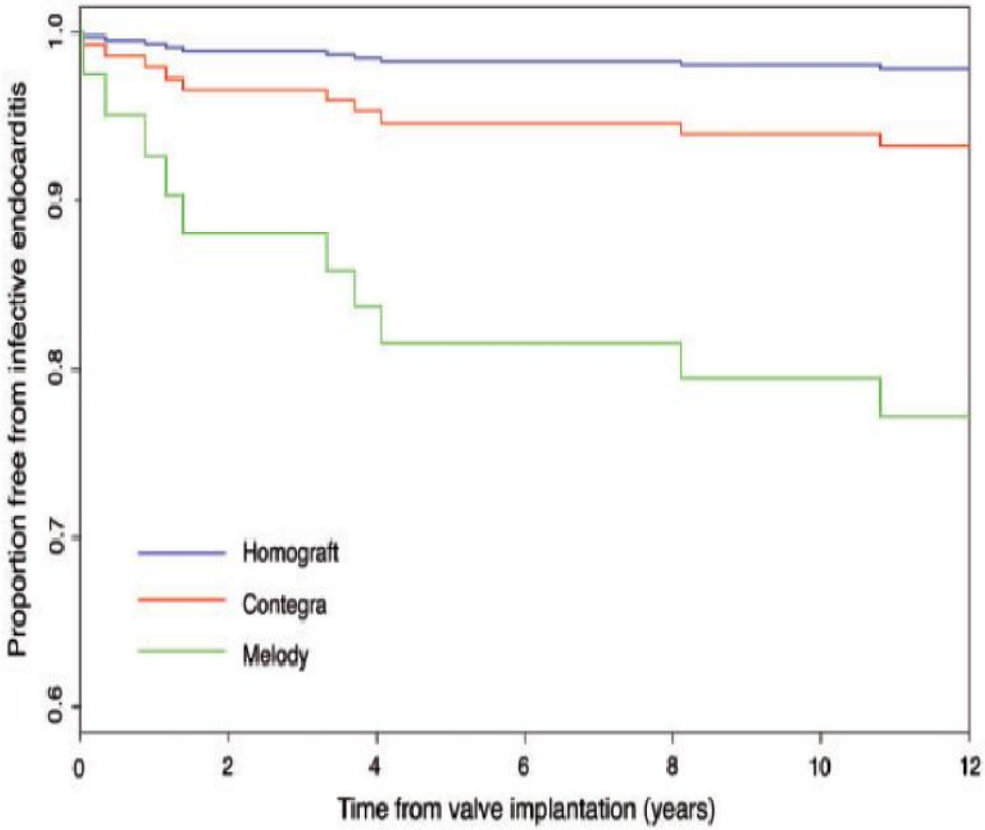

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Factores predisponentes

* Sexo masculino
* *In situ «stents»* en el TSVD
* Gradiente transvalvular >40 mmHg

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Conclusiones

* Los conductos de vena yugular bovina (Contegra®) y las prótesis percutáneas Melody® parecen tener más tendencia a presentar endocarditis infecciosa que los homoinjertos

* La incidencia de EI en la prótesis Melody® parece incrementarse durante el seguimiento