



31 GIORNATE CARDIOLOGICHE TORINESI

TURIN
October
24th-26th
2019

TAVI PATIENTS: HOW FAR SHOULD WE GO? CLINICAL SESSION

The challenge: a 90-year-old patient undergoing TAVI

LET'S DO TAVI

Mauro De Benedictis



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Ordine Mauriziano
di Torino***



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I HAVE NO CONFLICT OF INTEREST



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TAVI Procedure

ital (2008 -2019)

303
Transcatheter
implantation in
Long-term cohort
a pioneered center

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Long-term cohort analysis from
a pioneered center

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Background As the pioneer center in the transcatheter aortic valve implantation (TAVI) our experience provides the longest

**1071 Pts
(2002-2016)
14.3% ≥90 yrs**

P=0.05), less chronic obstructive pulmonary disease (8.5% vs. 20.1%, *P*=0.001), and less severe pulmonary hypertension (4.5% vs. 12.2% vs. 4.5%, *P*=0.01). "≥ 90" also had less prevalence of cancer (11.8% vs. 20.7%, *P*=0.03), less coronary artery bypass surgery (0.6% vs. 12.6%, *P*<0.0001), and their renal function was better (creatinin: 103.0 ± 33.6 vs. 113.5 ± 65 μmol/L, *P*=0.003). "≥ 90" were more treated by transfemoral approach (93.5% vs. 81%, *P*=0.0001). Thirty-day mortality was not different (7.8% vs. 6.4%, *P*=0.53). The incidence of 30-day major complications was similar. The incidence of aortic regurgitation above or equal to grade 2 (28.5% vs. 17.9%, *P*=0.002) was more common in nonagenarians. Long-term survival was similar (*P*=0.26) (Fig. 1). The life expectancy of these patients was comparable a population of the same age without aortic stenosis.

Conclusion Nonagenarians have less comorbidities. They benefit most from transfemoral approach. Outcomes are comparable to the overall population. TAVI is a safe and life-saving treatment in well-selected nonagenarian population.



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LET'S DO TAVI BECAUSE...

1. I don't like ageism
2. Risk estimate is challenging, but **clinical judgement** and **new scores** can help to orient the decision
3. **Frailty** could be a concept too difficult for an interventional cardiologist, but we count on the help of a **multidisciplinary team**
4. Rather than mortality, **QoL** is the hardest endpoint in 90yo people
5. LFLGpAS is a **myocardial and valvular** disease
6. Since percutaneous **valvuloplasty** didn't work, let's try to change the horse



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1. I don't like Ageism

From **720,000** individuals ≥ 90 years old in 1980 to **1.9 million** in **2010** in the US.

By 2050 we expect **8.7 million** people ≥ 90 years old

Mortality for surgical AVR

1.3% in patients < 70 years

5% in patients 70-85 years

10% in patients > 90 years

Are we ready for this next future?



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1. I don't like Ageism



AL SAN DONATO DI MILANO
**Flaviana, paziente record:
operata al cuore a 101 anni**
Manila Alfano
a pagina **10**



ÉQUIPE Francesco Bedogni ha operato Flaviana, 101 anni



Courtesy of my antiageist friend F. Bedogni



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1. I don't like Ageism

Ageing is a **heterogeneous process** with different velocities in different patients, related to the appearance of **comorbidity, frailty, disability**, and other ageing-related variables

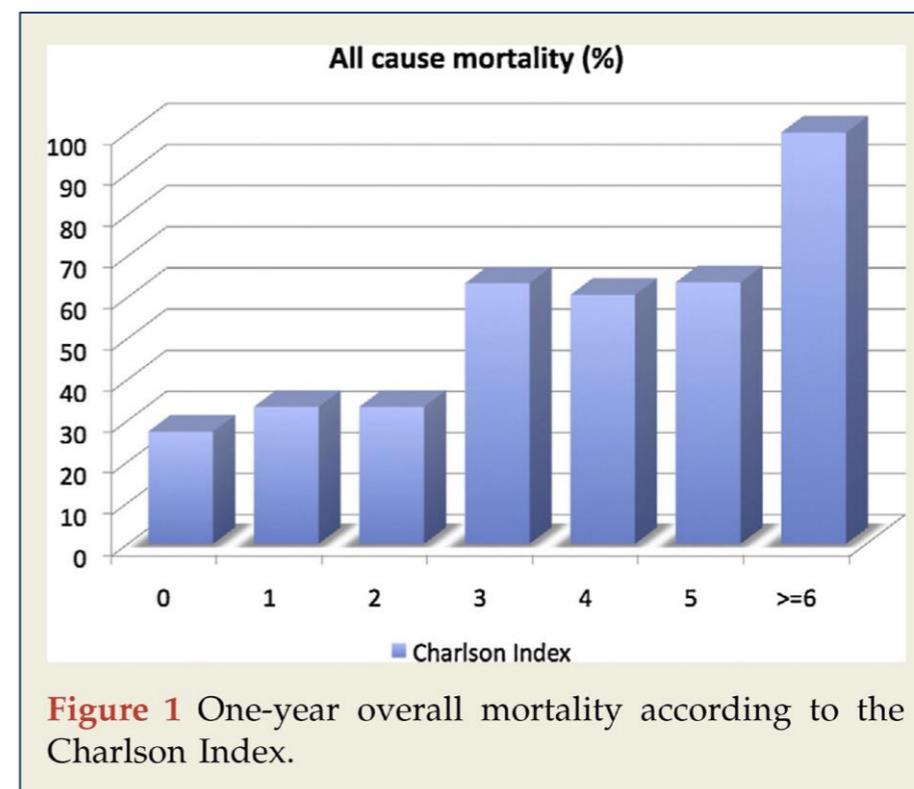
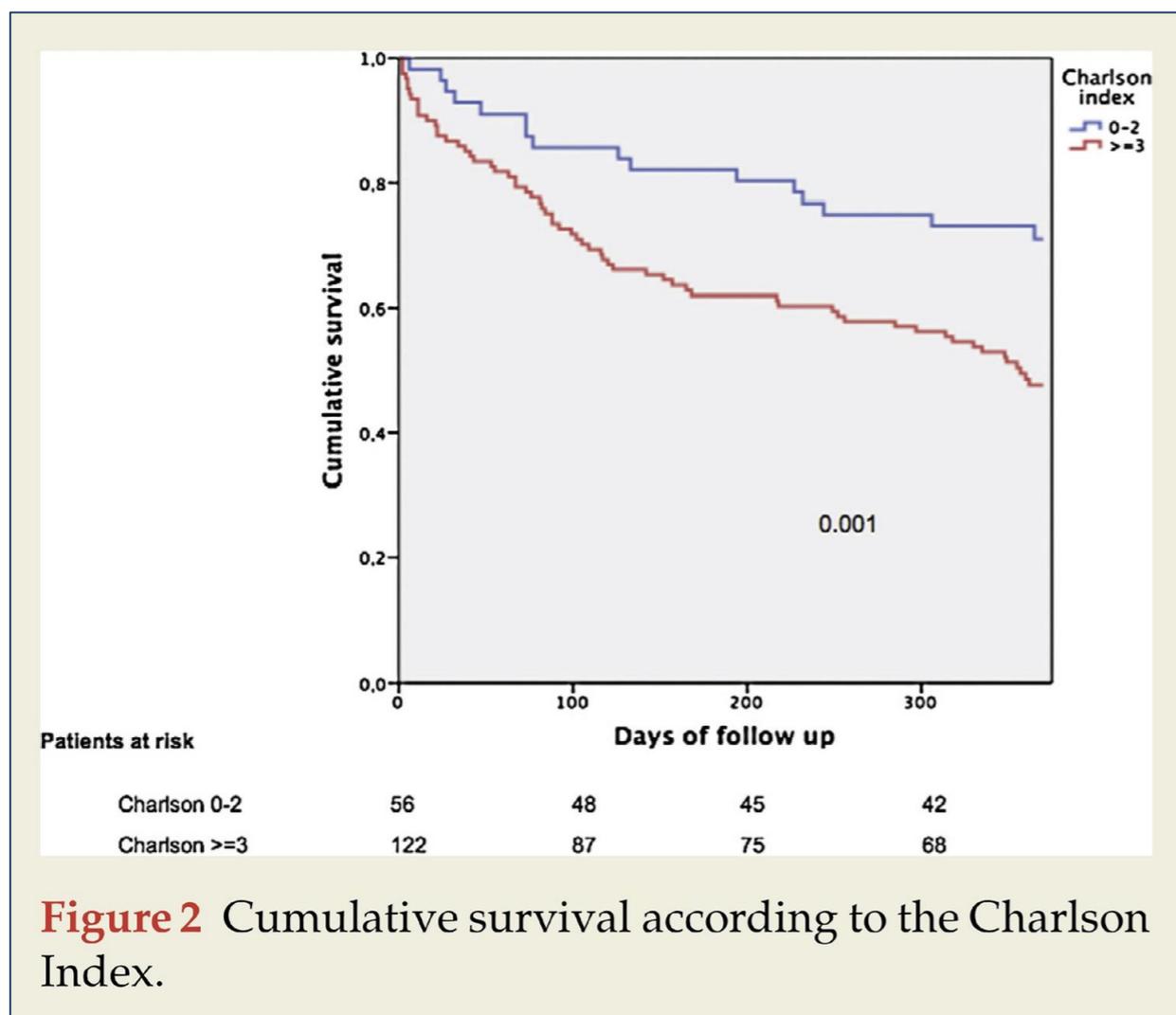


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1. I don't like Ageism

Role of Comorbidities: Data from PEGASO + IDEAS Registries



**Charlson Index <3
in 31.6% of pts**

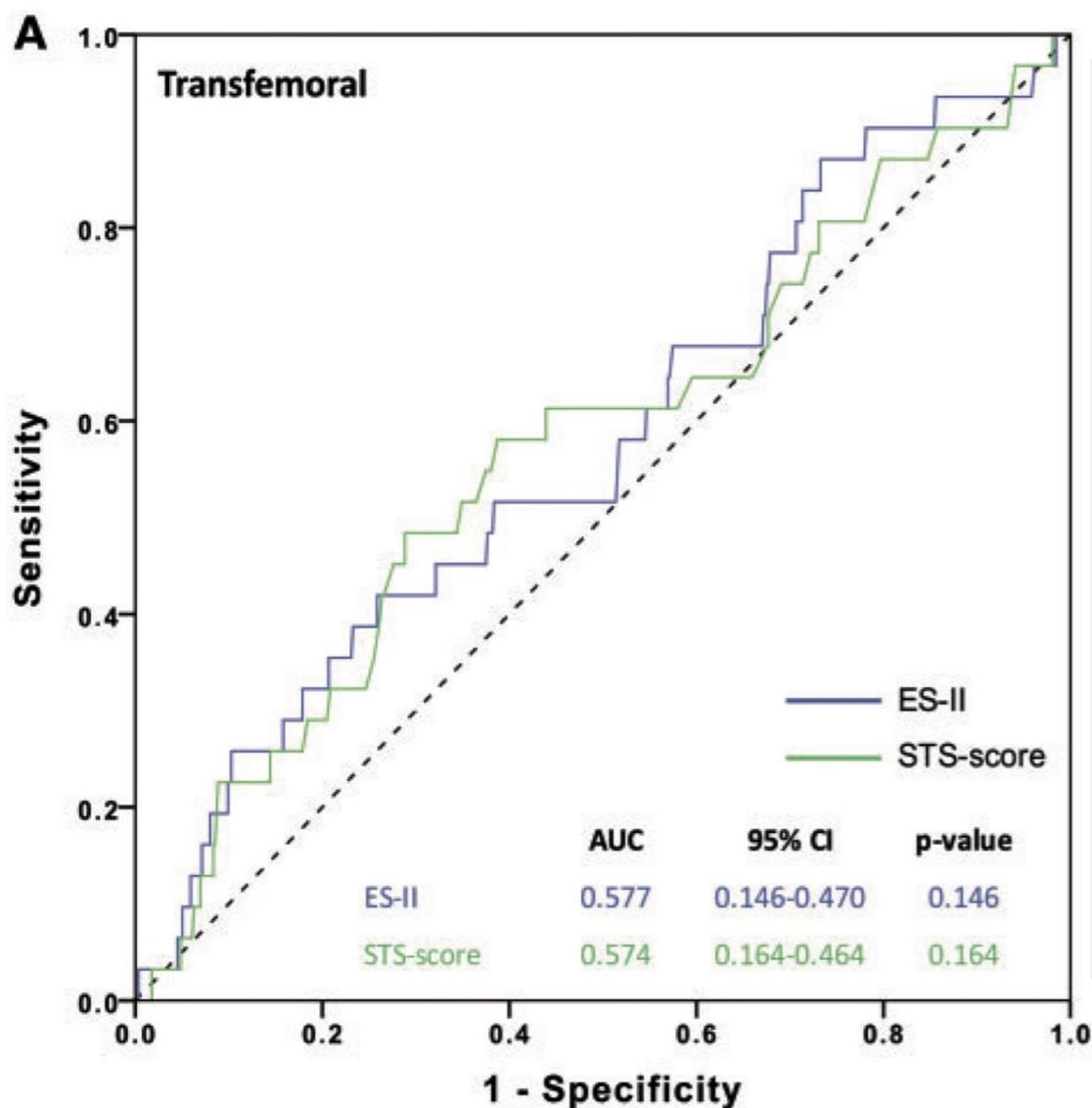
E. Bernal, A. Ariza-Sole', A. Baye's-Gen'is et al., Management of nonagenarian patients with severe aortic stenosis: the role of comorbidity. Heart, Lung and Circulation, vol. 27, no. 2, pp. 219– 226, 2018.



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2. Risk Stratification & Scores



1192 patients undergoing TA or TF TAVI between 2008 and 2016

The **EuroSCORE II** and the **STS score** were *not* associated with 30-day mortality and mortality during follow-up period in TF TAVI.



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2. Risk Stratification & Scores

BEYOND STS AND EUROSCORE

Table I Geriatric assessment tools used in the novel frailty score, along with the corresponding scoring scheme

Domain	Cut-off	Points
Cognition	MMSE ≥ 27	0
	MMSE 20–26	1
	MMSE < 20	2
Instrumental activity of living	NEADL ≤ 43	1
Nutrition	BMI < 20.5	1
Energy level SOF index	Low energy	1
Weight loss SOF index ^a	Weight loss	1
Limb strength SOF index	Chair stand (not able)	1
Comorbidity	Charlson comorbidity index ≥ 3	1
Psychological factors	HADS (total score) ≥ 15	1
Total	Maximum score	9

Skaar E, Eide LSP, Schaufel MA. A novel geriatric assessment frailty score predicts 2-year mortality after transcatheter aortic valve implantation. Eur Heart J Qual Care Clin Outcomes. 2019 Apr 1;5(2):153-160.

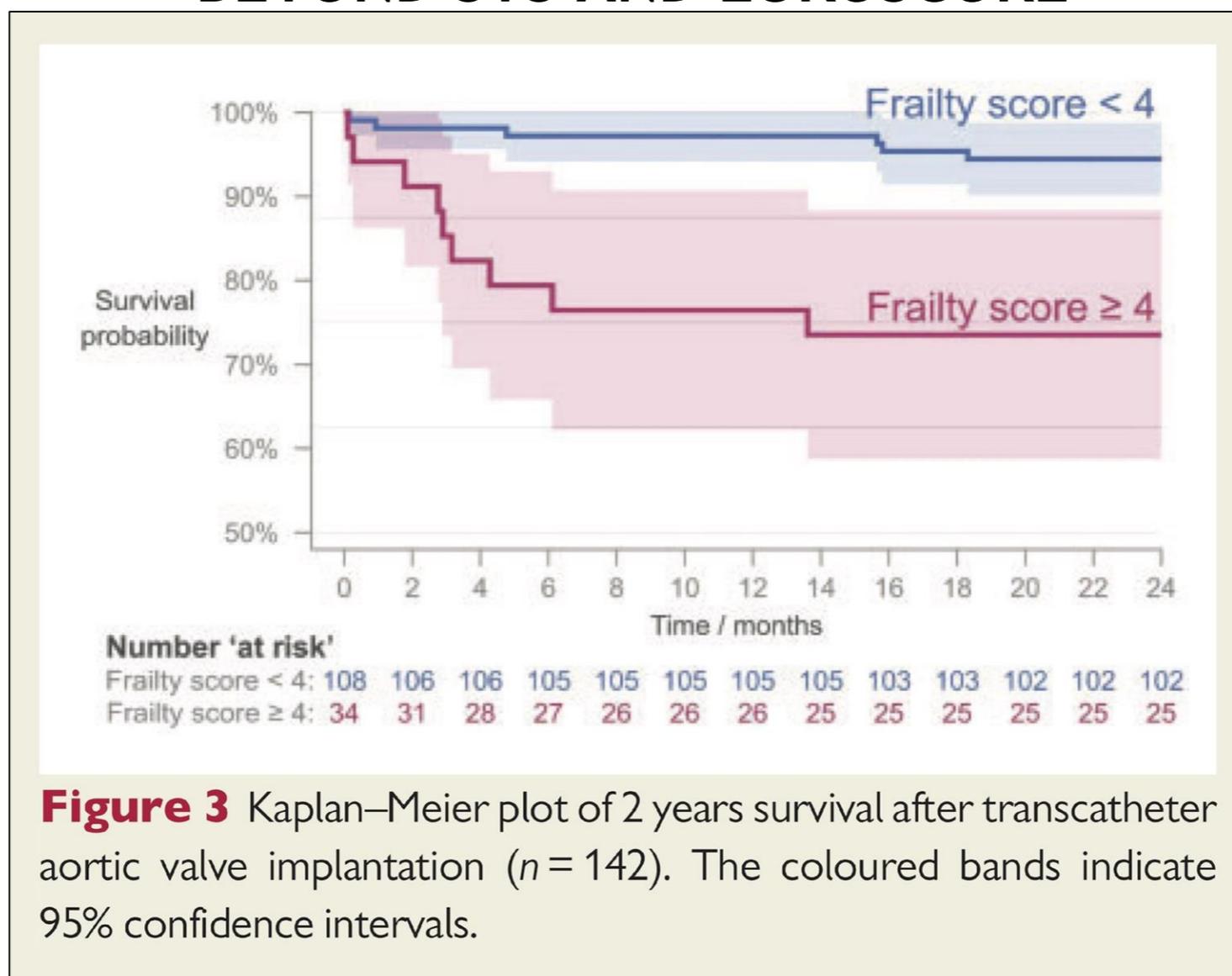


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2. Risk Stratification & Scores

BEYOND STS AND EUROSCORE



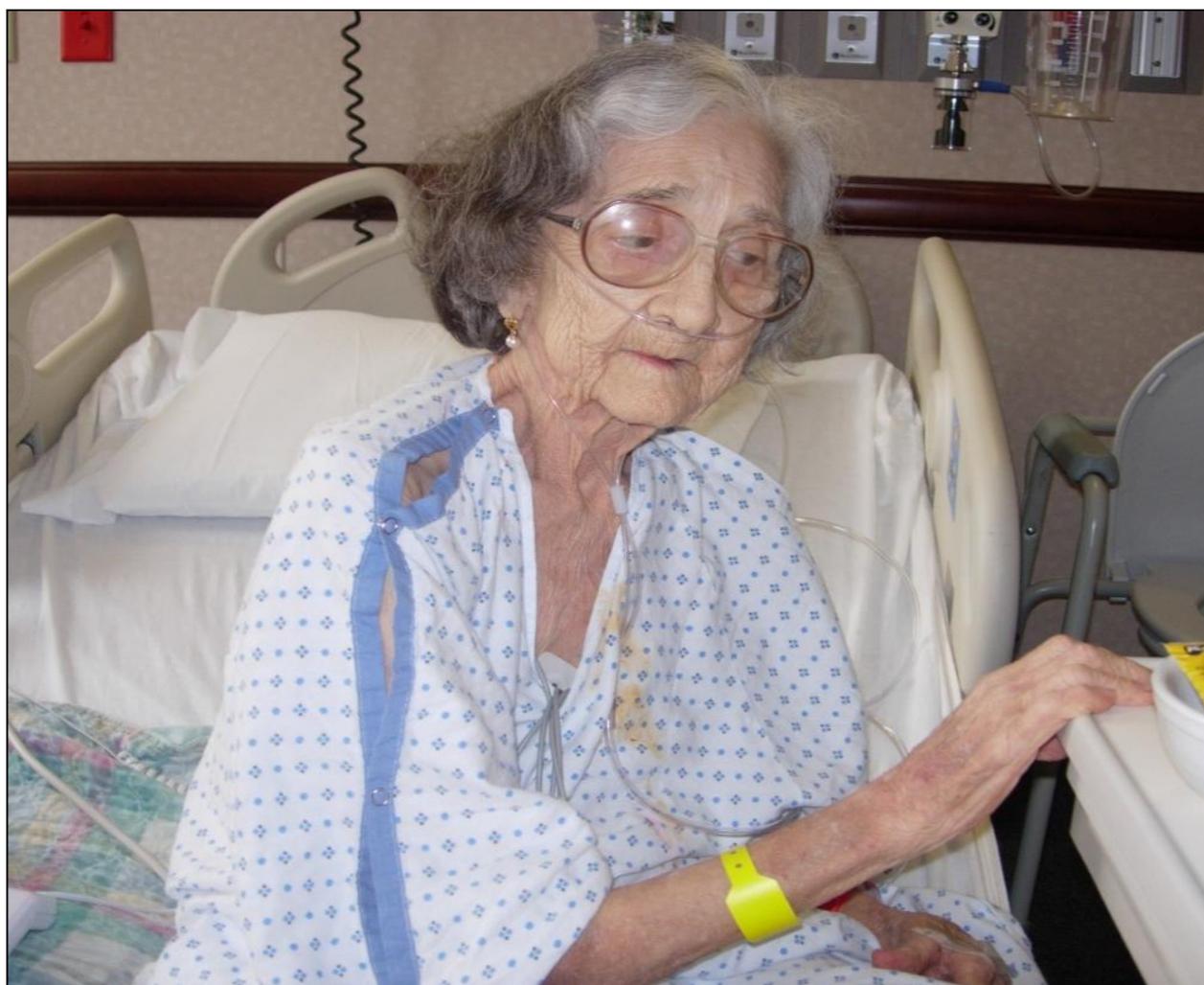
Skaar E, Eide LSP, Schaufel MA. A novel geriatric assessment frailty score predicts 2-year mortality after transcatheter aortic valve implantation. Eur Heart J Qual Care Clin Outcomes. 2019 Apr 1;5(2):153-160.



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3. Is Frailty a too difficult concept for Interventional Cardiologists?



One passes the “eyeball test”; one doesn’t



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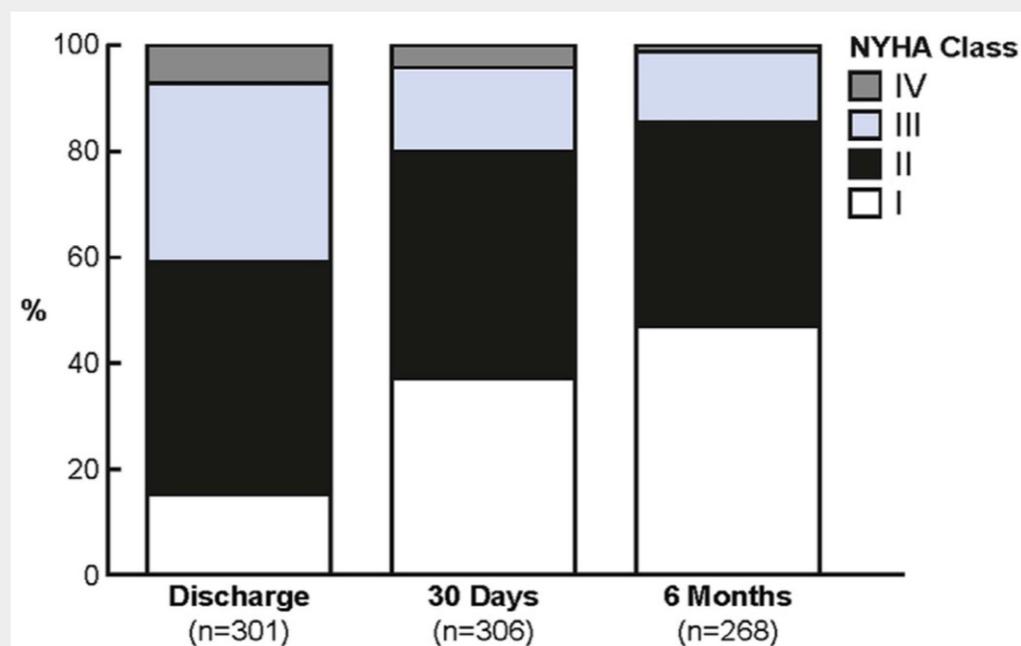
4. QoL is a «harder» endpoint than Mortality

Data from THE PARTNER Trial

30-day mortality 4.0%

3-year mortality 48% (44% for the matched population)

At 6 months, most **QoL measures had stabilized at a level considerably better than baseline**, with Kansas City Cardiomyopathy Questionnaire (KCCQ) 72 ± 21 .





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Is Mortality an Issue in Nonagenarians?

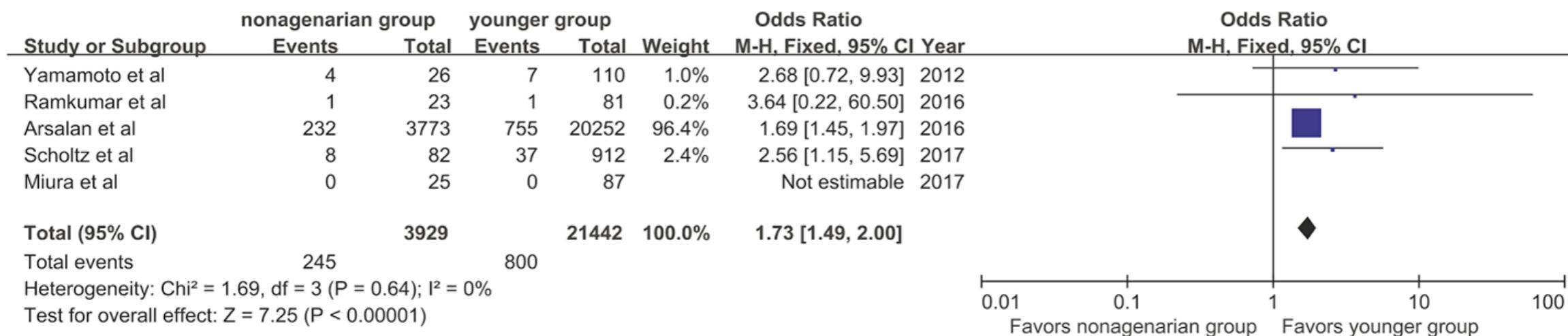


FIGURE 4: Forest plot of pooled analysis comparing 30-day mortality of nonagenarians versus younger patients.

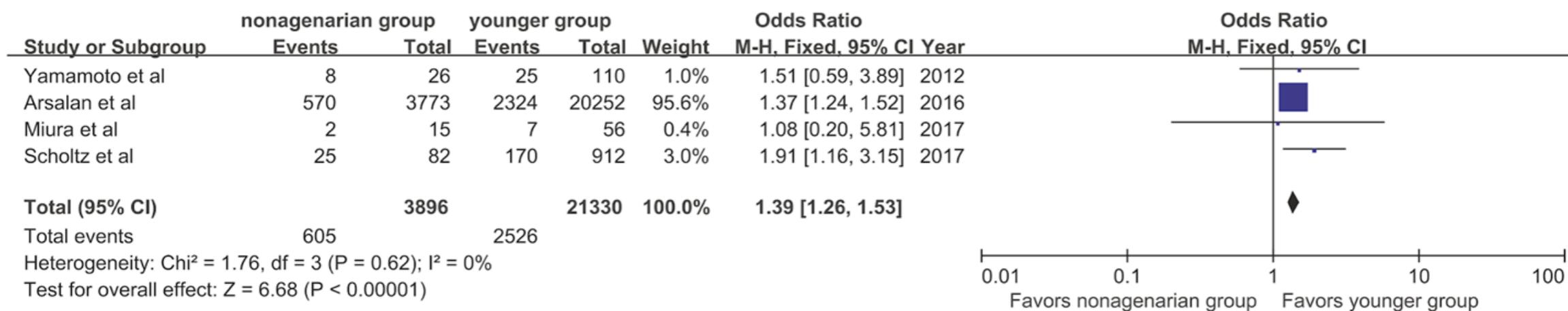


FIGURE 5: Forest plot of pooled analysis comparing 1-year mortality of nonagenarians versus younger patients.

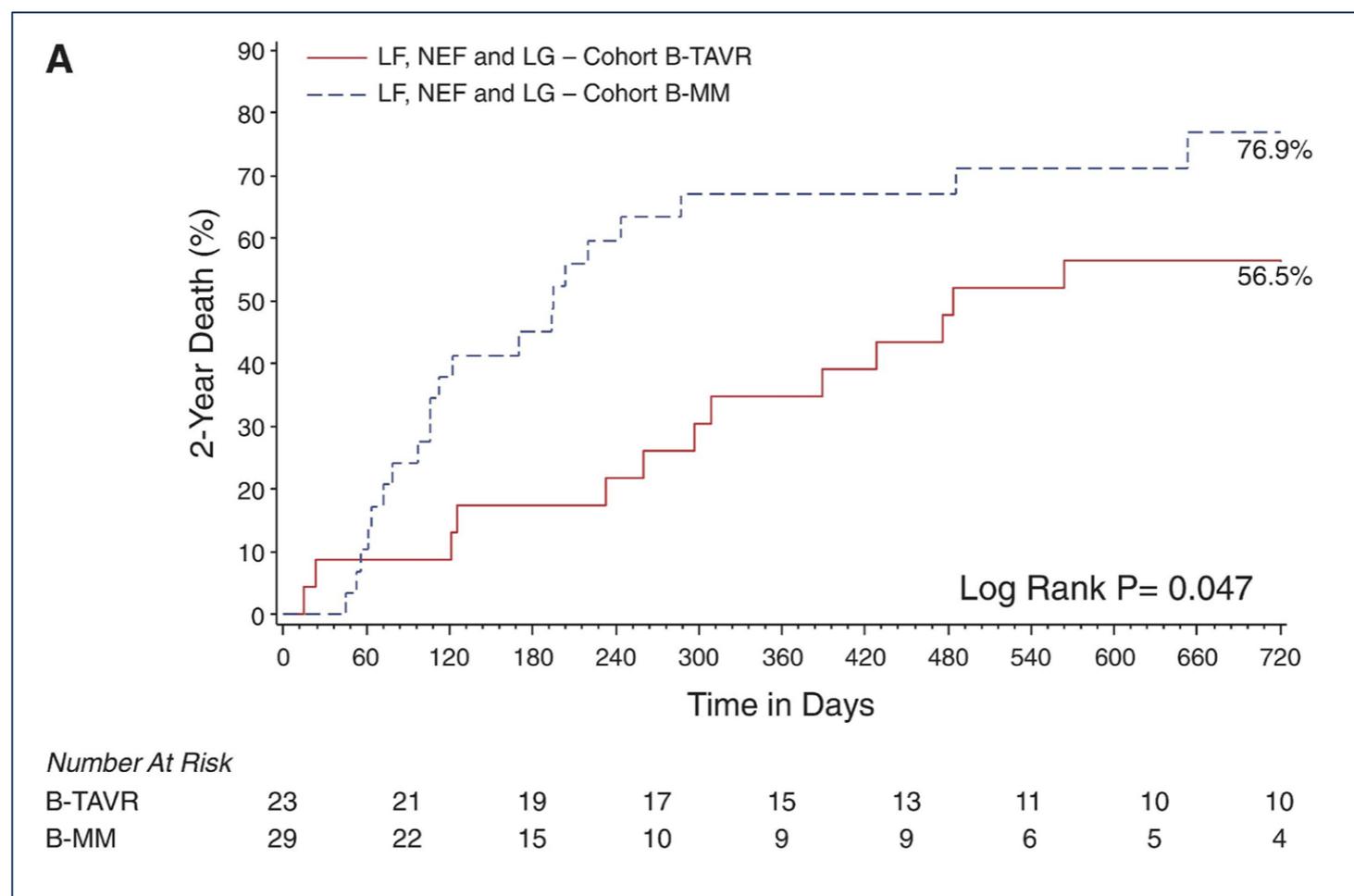


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5.LFLGpAS is a Myocardial *and* Valvular Disease

TAVI vs medical therapy in LFLGpAS: Data from THE PARTNER TRIAL



Herrmann HC, Pibarot P, Hueter I, Gertz ZM, Stewart WJ, Kapadia S, Tuzcu EM, Babaliaros V, Thourani V, Szeto WY, Bavaria JE, Kodali S, Hahn RT, Williams M, Miller DC, Douglas PS, Leon MB. **Predictors of mortality and outcomes of therapy in low-flow severe aortic stenosis: a placement of aortic transcatheter valves (PARTNER) trial analysis.** *Circulation* 2013;127:2316–2326.



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A 98-year-old grandfather becomes the oldest man to undergo pioneering heart surgery but was it a waste of NHS resources?

- John Rowland, 98, features on the fifth episode of BBC2 documentary Hospital
- Active pensioner undergoes a TAVI (transcatheter aortic valve implantation)
- Procedure involves having artificial valve inserted into the heart via the groin
- Dramatic episode sees Mr Rowland's family dilemma over whether to proceed
- Doctors have expressed fears that later life surgery is putting a strain on NHS



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THANK YOU FOR YOUR ATTENTION!

