TAVR under Conscious Sedation

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Disclosure

No disclosures

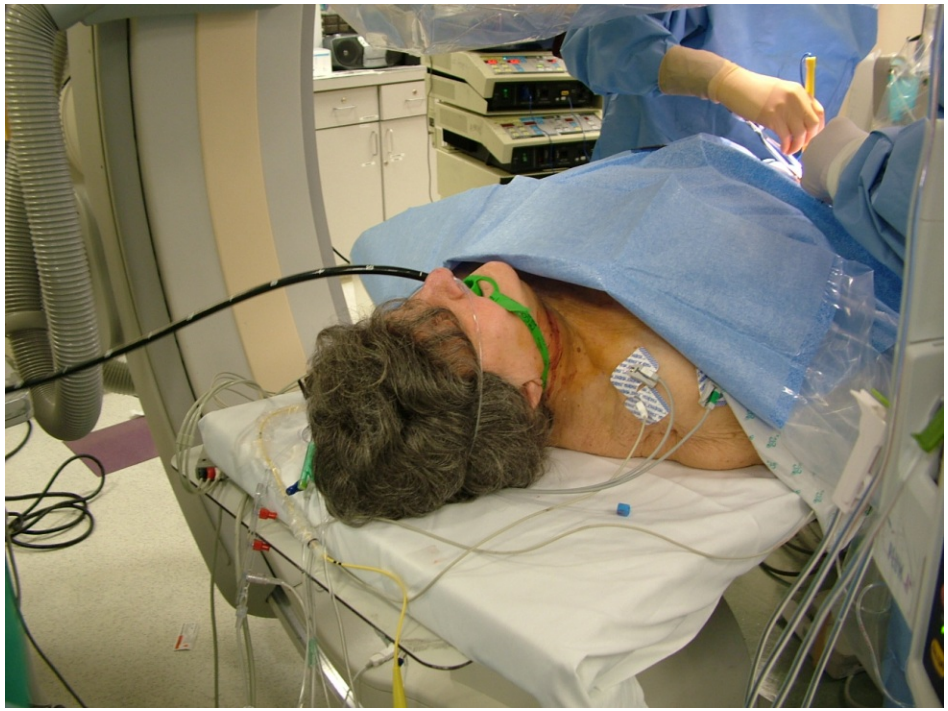
Medstar Heart Institute

Cleveland Clinic
Heart and Vascular Institute

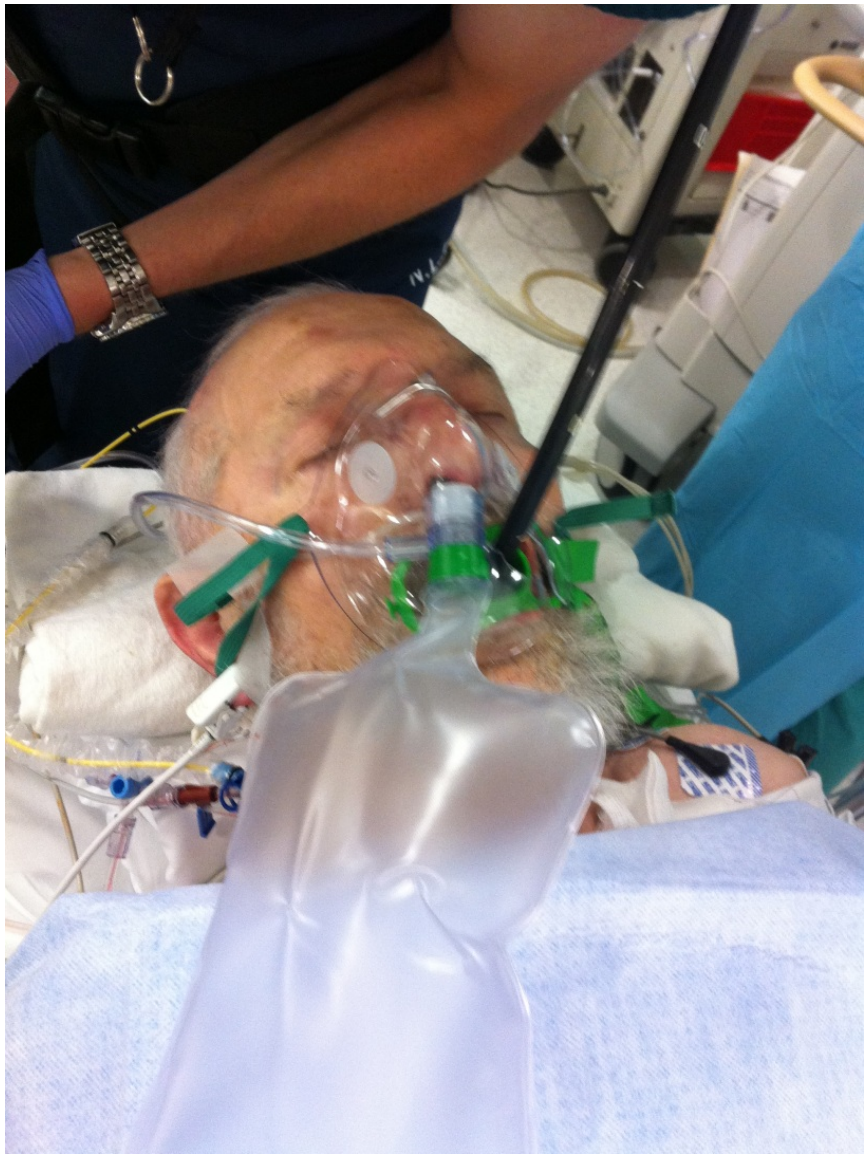
General Anesthesia is Not Needed for TAVR

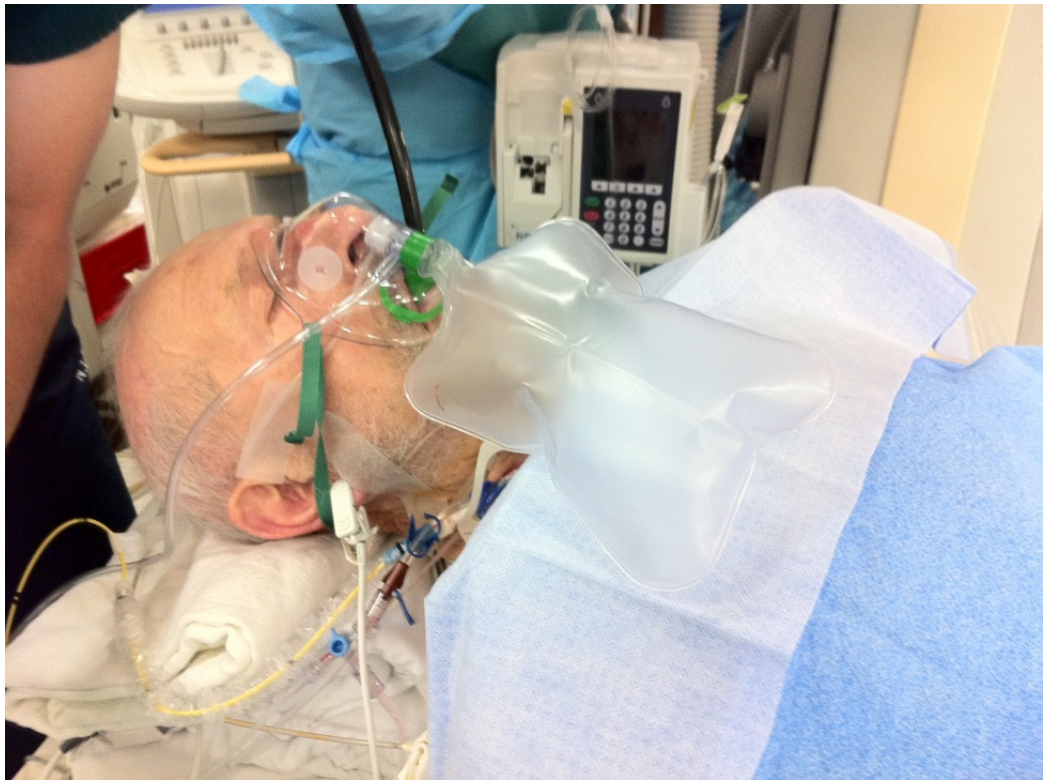
Monitored Anesthesia Care (MAC) Protocol:

- Cardiac Anesthesiologist in the Lab
- Anesthesia equipment in the Lab
- Anesthesiologist has the usual set up for cardiac anesthesia: Swan through IJ, radial artery line, etc.
- Generous Lidocaine in the groin.



Medstar Washington Hospital Center.
2007



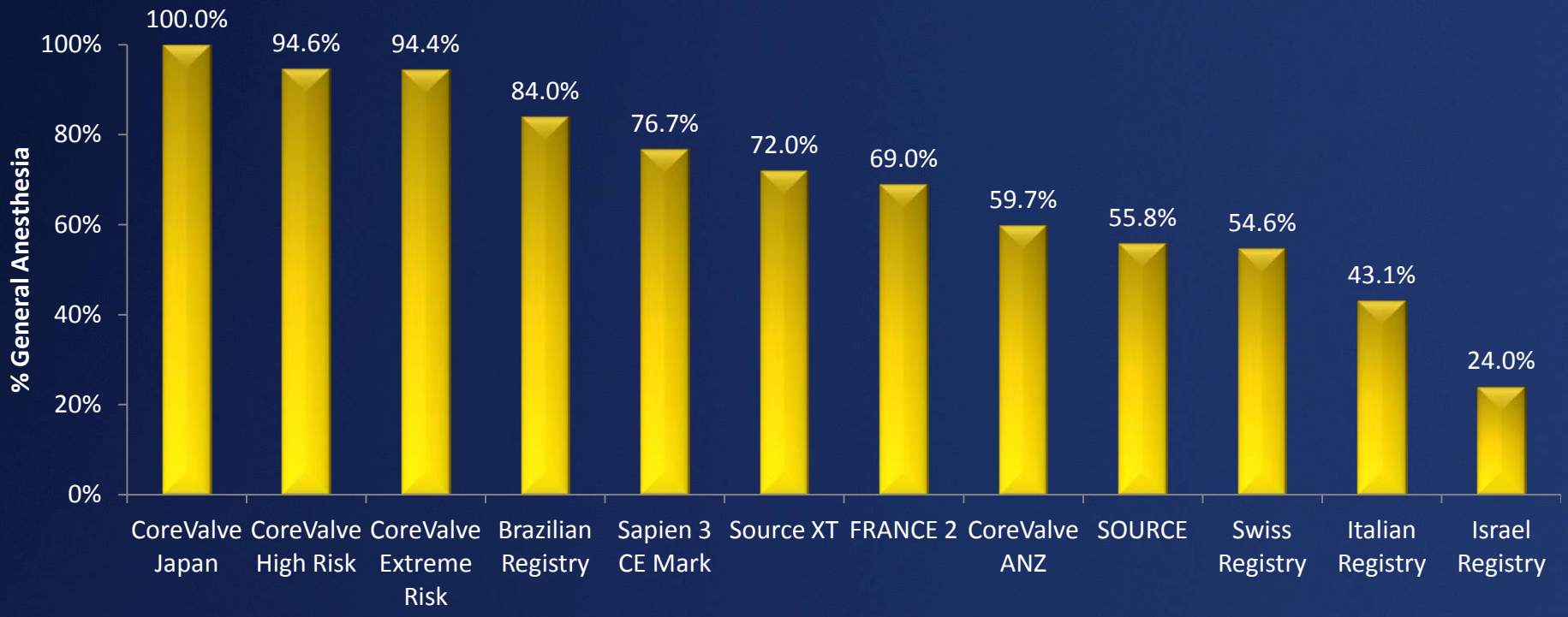


Patient Discomfort ?

- **Patients are asleep and do not know what is going on.**
- **There is no pain, no suffering!**

Use of General Anesthesia | Worldwide Reported Experience

Despite some regional variation, the vast majority of TAVR procedures have been performed with general anesthesia



CoreValve ER: Popma, et. al, JACC 2014; 20;63(19):1972-81. CoreValve HR: Adams, et. al, NEJM 2014; 370(19):1790-8. CoreValve ANZ: Meredith, CSANZ 2013. CoreValve Japan: Sawa, et. al, Circ J 2014; 78(5):1083-90. SOURCE: Thomas, TCT 2012. SOURCE XT: Windecker, EuroPCR 2013. Sapien 3: Webb, et. al, JACC 2014; 2;64(21):2235-43. Italian Registry: Ussia, et. al. EHJ 2012; 33(8):969-76. France 2: Gilard, TCT 2013. Brazilian Registry: Brito, Solaci 2013. Swiss Registry: Wenaweser, et. al. EuroIntervention 2014; 10(8):982-9. Israel Registry: Danenberg, EuroPCR 2013.

Conscious Sedation for TAVR

USA: Original 61 Centers doing TAVR: 5% used Conscious Sedation.

TVT Registry (Mack, Oct 2013): 2%

Recently, most large Centers are adopting MAC.

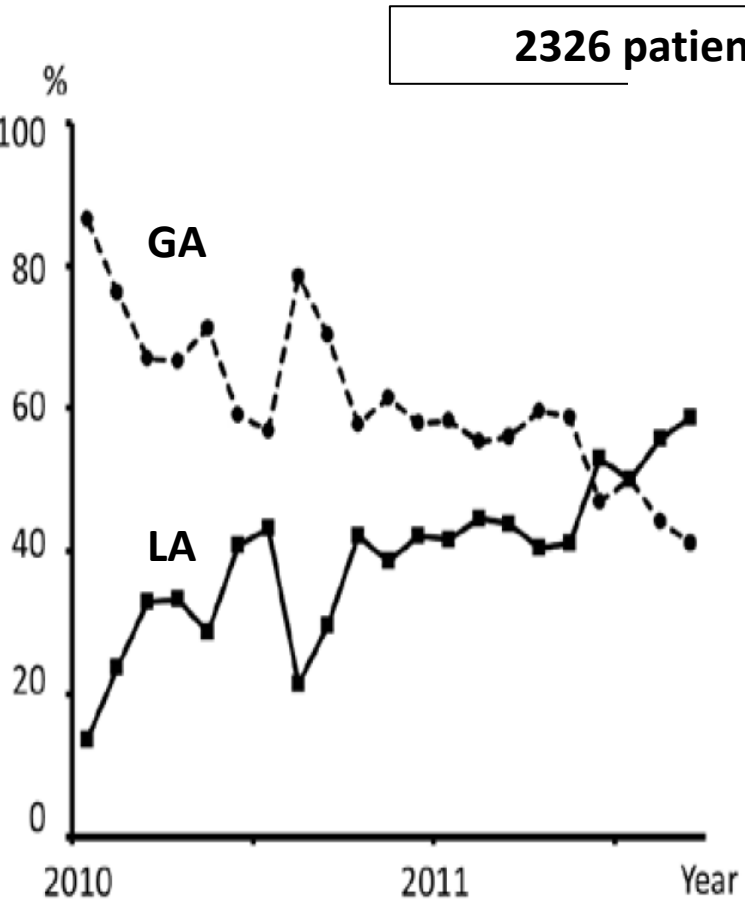
WHC: 95% MAC for Femoral Access.

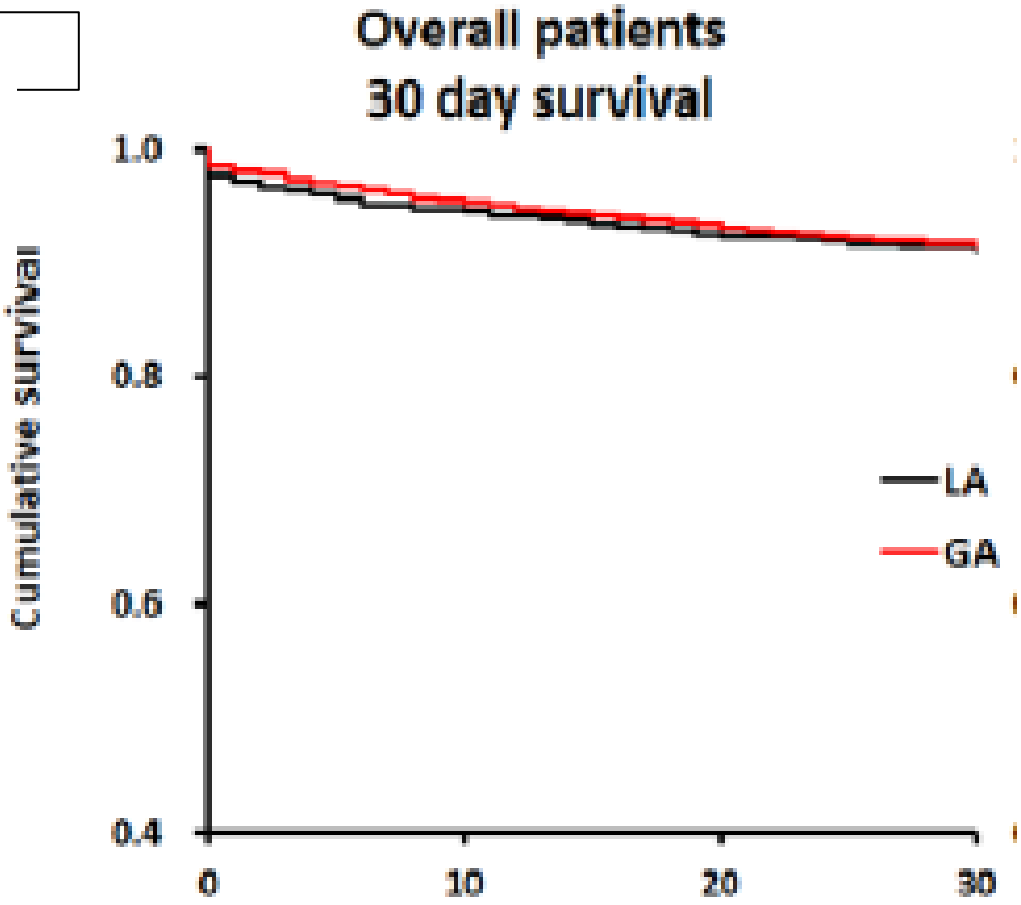
Europe: 68.4% use Conscious Sedation

Cribier et al (Rouen): 100% Conscious Sedation (JACC Interv. 2012;5:461-7).

General vs Local Anesthesia.

French 2 Registry. Oguri et al. Circ Interv 2014; Vol 7





TEE in 17 vs 76%. PVL

Minimalist Approach

Babaliaros et al. JACC CV Interv 2013;7:898-904

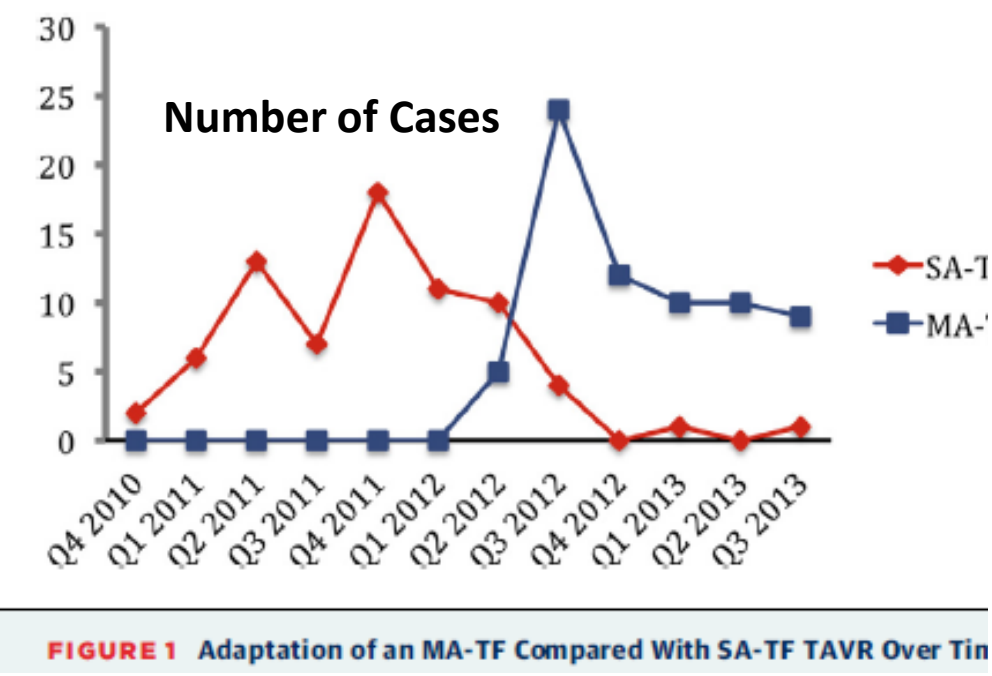
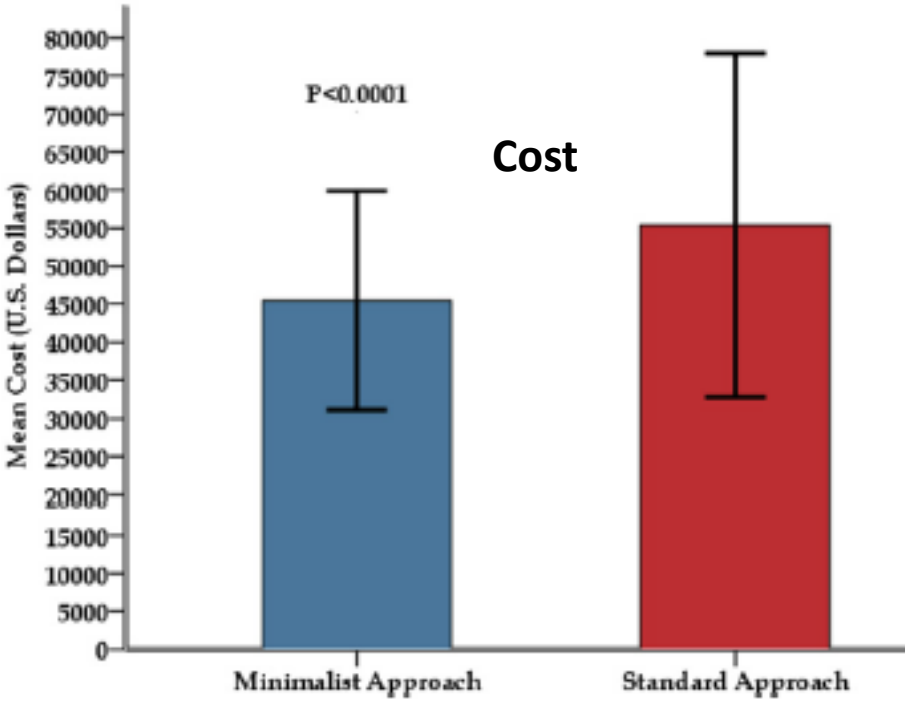


FIGURE 1 Adaptation of an MA-TF Compared With SA-TF TAVR Over Tim

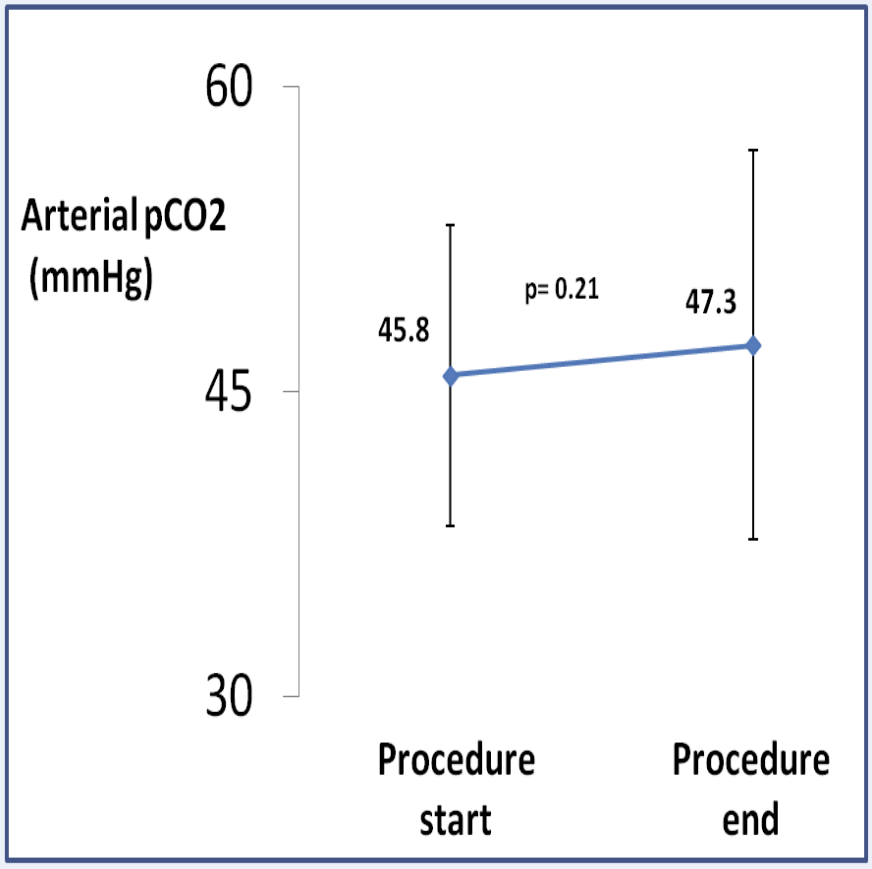


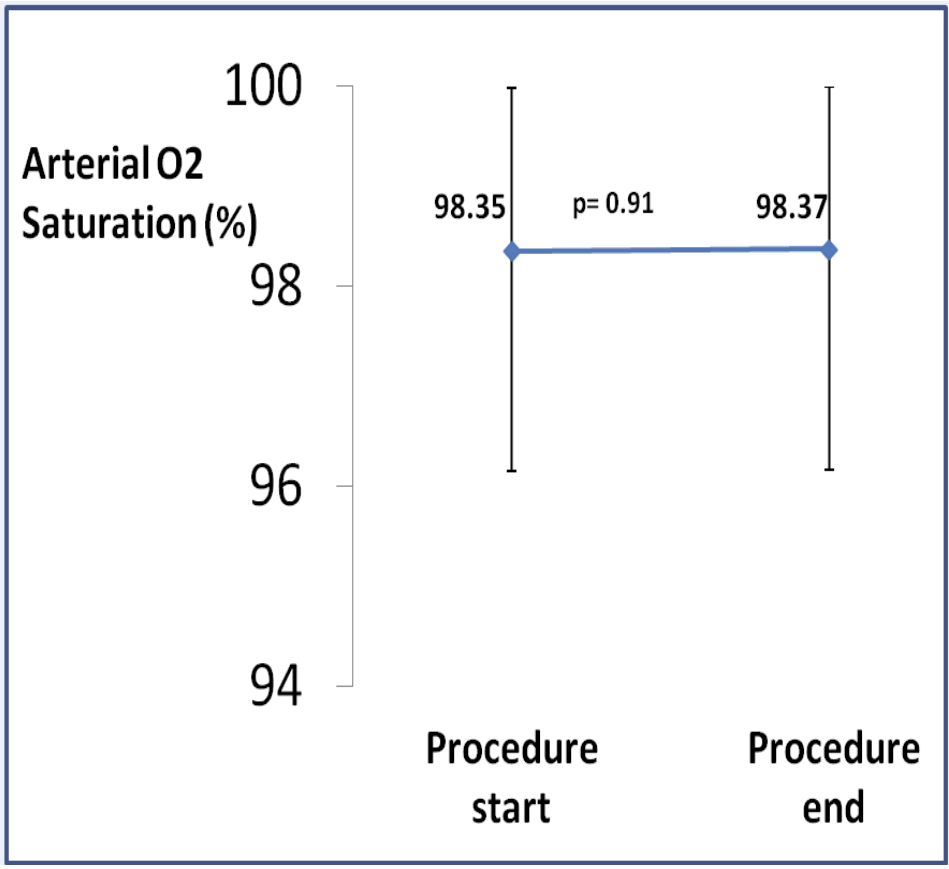
Minimalist Approach vs Standard:

- **Procedure time: 150 vs. 218 min**
- **Length of stay: 3 vs 5 days**

Arterial Gases during MAC

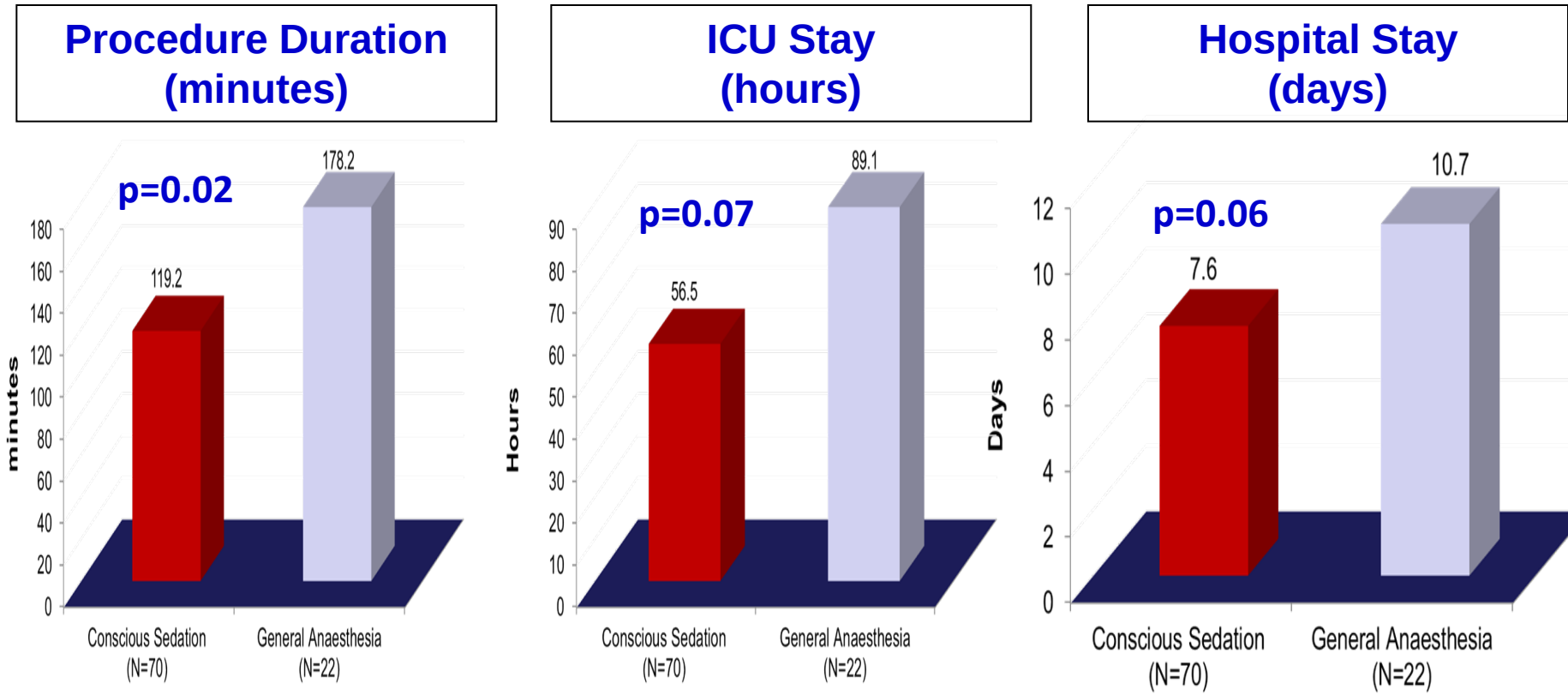
WHC: Dvir et al. ACC 2012





MAC vs. General Anesthesia.

WHC: Ben-Dor et al. CV Revasc Med 2012;13:211-4



Less hemodynamic effects of MAC vs General Anesthesia

Conversion to General Anesthesia

- At Washington Hospital Center all TAVR patients are planned without General Anesthesia.
- <5% converted to general anesthesia:
  - due to respiratory failure
  - due to hemodynamic compromise
  - Always try to extubate in Cath Lab

Minimalist Approach: The Rouen Approach. JACC Interv 2012;5:461-7

	Rouen	WHC
Intubation	No	No
TEE	No	Yes
Swan Ganz	No	Yes
Radial artery pressure	No	Yes
Gradients pre-post	No	Yes
Heart-Lung Machine in room	No	Yes
Vascular Instruments Table	No	No
Percutaneous Access	Yes	Yes

"Minimalist" Approach

JACC CV Interv 2012;5:461-7

Transfemoral Aortic Valve Replacement With the Edwards SAPIEN and Edwards SAPIEN XT Prosthesis Using Exclusively Local Anesthesia and Fluoroscopic Guidance

Feasibility and 30-Day Outcomes

Eric Durand, MD, PhD,* Bogdan Borz, MD,* Matthieu Godin, MD,* Christophe Tron, MD,* Pierre-Yves Litzler, MD, PhD,† Jean-Paul Bessou, MD,† Karim Bejar, MD,* Chiara Fraccaro, MD,* Carlos Sanchez-Giron, MD,* Jean-Nicolas Dacher, MD, PhD,‡ Fabrice Bauer, MD, PhD,* Alain Cribier, MD,* Hélène Eltchaninoff, MD*

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EDITORIAL COMMENT

The Minimalist Approach for Transcatheter Aortic Valve Replacement in High-Risk Patients*

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Next Day Discharge in High Risk TAVR

D. Wood et al. Vancouver. TVT 2014.

n=75 patients (29% of total pts).

- **The mean LOS of 1.67 days (1-9).**
- **69% were discharged one day post TAVR.**
- **Mortality at 30 days was 1.6% (1/62).**
- **2 readmissions in 30 days (1 PPM and 1 pulm. fibrosis).**

Cleveland Clinic Case

Kapadia, Tuczu, Svenson et al.

- **TAVR at 1 PM**
- **Home at 7 PM. Patient wanted to walk his dogs!**
- **Came to Clinic next day for echo and routine blood tests.**

TAVR with MAC (Monitored Anesthesia Care)

- 74 year old male
- Severe COPD
  - FEV1: 30% predicted
  - PCO2: 68 mmHg, PO2: 50 mm Hg.
  - On Home Oxygen
  - 262 pounds.
- 3 pulmonary specialists and Cardiac Surgery: Not an operative candidate.
- TAVR Feb 2008. Talking at end of procedure.
- Did very well

Conclusions

- **T-AVR without general anesthesia is advantageous. (All the side effects of general anesthetics are avoided).**
- **Published data suggests no downside to outcomes. No randomized data to prove benefit.**
- **TEE is safe and effective without general anesthesia.**
- **We highly recommend the minimalist approach!**

The end