

DIAGNOSTIC EFFICACY OF MINIATURIZED TEE IN HEMODYNAMIC MANAGEMENT

H. M. Hastings, S. L. Roth, ImaCor, Garden City, NY, USA
hhastings@ImaCorinc.com

ASAIO,
 Washington DC,
 June 2014

Background: A miniaturized TEE probe (ClariTEE® ImaCor, Garden City, NY, USA) has been widely used in post-op TEE-guided hemodynamic management (hTEE) of high-risk surgery, MCS and critically ill patients in the ICU.

Question: What is diagnostic efficacy of hTEE in hemodynamic management of these patients?



TEE probes: Left: ImaCor ClariTEE, Right: Conventional (from Vieillard-Baron et al., ICM, 2013)

Methods:

- Meta-analysis of peer reviewed case series of patients managed with hTEE (total over 200).
- Comparison with widely cited meta-analysis of 2508 critically ill patients managed with conventional TEE (Hüttemann, Minerva Anesthesiol 2006; Porembka, Crit Care Med 2007).

Note: Availability, size and complexity limit use of conventional TEE for hemodynamic monitoring (cf. Hüttemann 2006; Greenhalgh, Patrick, Anaesthesia 2012).

Studies included:

Intensive Care Med
 DOI 10.1007/s00134-012-2797-4

ORIGINAL

Antoine Vieillard-Baron
 Michel Slama
 Paul Mayo
 Cyril Charron
 Jean-Bernard Amiel
 Cédric Estèze
 François Leleu
 Xavier Repesse
 Philippe Vignon

A pilot study on safety and clinical utility of a single-use 72-hour indwelling transesophageal echocardiography probe

Cioccari et al. *Crit Care* 2013, 17:R121
<http://critforum.com/content/17/3/R121>



RESEARCH

Open Access

Hemodynamic assessment of critically ill patients using a miniaturized transesophageal echocardiography probe

Luca Cioccarì¹, Hans-Rudolf Baur², David Berger¹, Jan Wiegand¹, Jukka Takala¹ and Tobias M Merz^{1*}

Feasibility of diagnosis of postcardiotomy tamponade by miniaturized transesophageal echocardiography

Hitoshi Hirose, MD, PhD,^{*} Shreya Gupta, BS, Harrison Pitcher, MD, Joseph Miessau, MS, Qiong Yang, MD, Jenny Yang, BS, and Nicholas Cavarocchi, MD

Department of Surgery, Thomas Jefferson University Hospital, Philadelphia, Pennsylvania



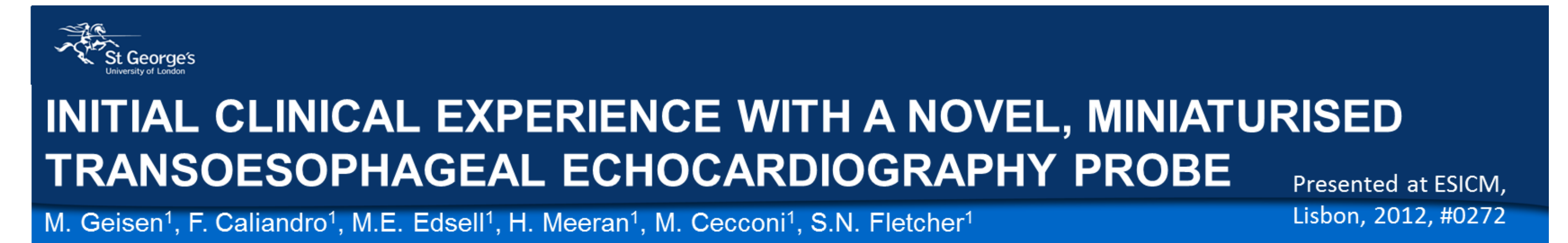
Weaning of extracorporeal membrane oxygenation using continuous hemodynamic transesophageal echocardiography

Nicholas C. Cavarocchi, MD,^a Harrison T. Pitcher, MD,^a Qiong Yang, MD,^a Pawel Karbowski, MS,^a Joseph Miessau, MS,^a Harold M. Hastings, PhD,^b and Hitoshi Hirose, MD^a



Meta-analysis:

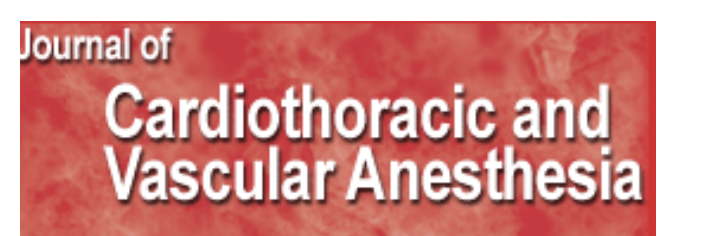
Study (first author)	Patient group	Assessment	# of pts	# affected	% affected
Giesen	Cardiac	Improved hemodynamics	15	14	93%
Giesen	General	Improved hemodynamics	12	8	67%
Hirose	Tamponade physiology	Tamponade (y/n?) (8 patients urgently re-explored)	21	13	62%
Maltais	Cardiac (unstable)	Discordance	21	14	67%
Vieillard-Baron	Circulatory failure, ARDs	Therapeutic impact	94	66	70%
Subtotal patients, overall diagnostic impact			163	115	71%
Studies not reporting data by patient					
Cioccari	Critically ill	Main goal was training, study logged therapeutic changes	50	156 exams, 56 therapeutic changes	
Cavarocchi	ECMO weaning	Prediction of weaning success	21	100% accurate	
Total patients			234		



¹St. George's Healthcare NHS Trust, Critical Care Directorate, London, United Kingdom

Episodic Monoplane Transesophageal Echocardiography Impacts Postoperative Management of the Cardiac Surgery Patient

Simon Maltais, MD, PhD,^{*} William T. Costello, MD,[†] Frederic T. Billings IV, MD, MSc,[†] Julian S. Bick, MD,[‡] John G. Byrne, MD,[‡] Rashid M. Ahmad, MD,[‡] and Chad E. Wagner, MD[‡]



2013; 27: 665

Results: Reported diagnostic impact of hTEE by patient averaged 70%, similar to the 67% for conventional TEE reported by Hüttemann (2006); *see table*.

Cioccari et al. (Crit Care 2013) reported impact by exam, finding impact in 34% of exams (note – focus of study was training).

Cavarocchi et al. (JTCVS 2013): hTEE-guided protocol for weaning ECMO: 100% predictive value albeit in only 21 patients.

Discussion: Although further study is needed, the diagnostic efficacy of hTEE in post-op hemodynamic management of high-risk patients is equivalent to that of conventional TEE in its milieu.

COI: HMH is a stockholder in ImaCor; SLR is a stockholder and employee of ImaCor.