

Feasibility of focused cardiac ultrasound performed by novices during Cesarean delivery

M. Sheikh, W. Athar, C. Padilla, B. Carvalho, N. Guo, C. Ortner

Background:

- Experts advocate use of focused cardiac ultrasound (FCU) in high-acuity obstetric units
- Conditions during cesarean delivery (CD) may make FCU more challenging
- Aim: to assess feasibility of FCU performed during CD by obstetric anesthesiologists with basic echocardiography training

Methods:

- Prospective study at academic hospital with CD rate of 32%
- Novices underwent standardized training (8-hour E-learning module, 1-day hands-on FCU course, and 20-30 supervised scans)
- Novices performed FCU after spinal anesthesia (SPA) and after neonatal delivery (ND)
- Obtained images graded 1-5 by two blinded expert reviewers

Focus Assessed Transthoracic Echo (FATE)

Scanning through position 1-4 in the most favourable sequence

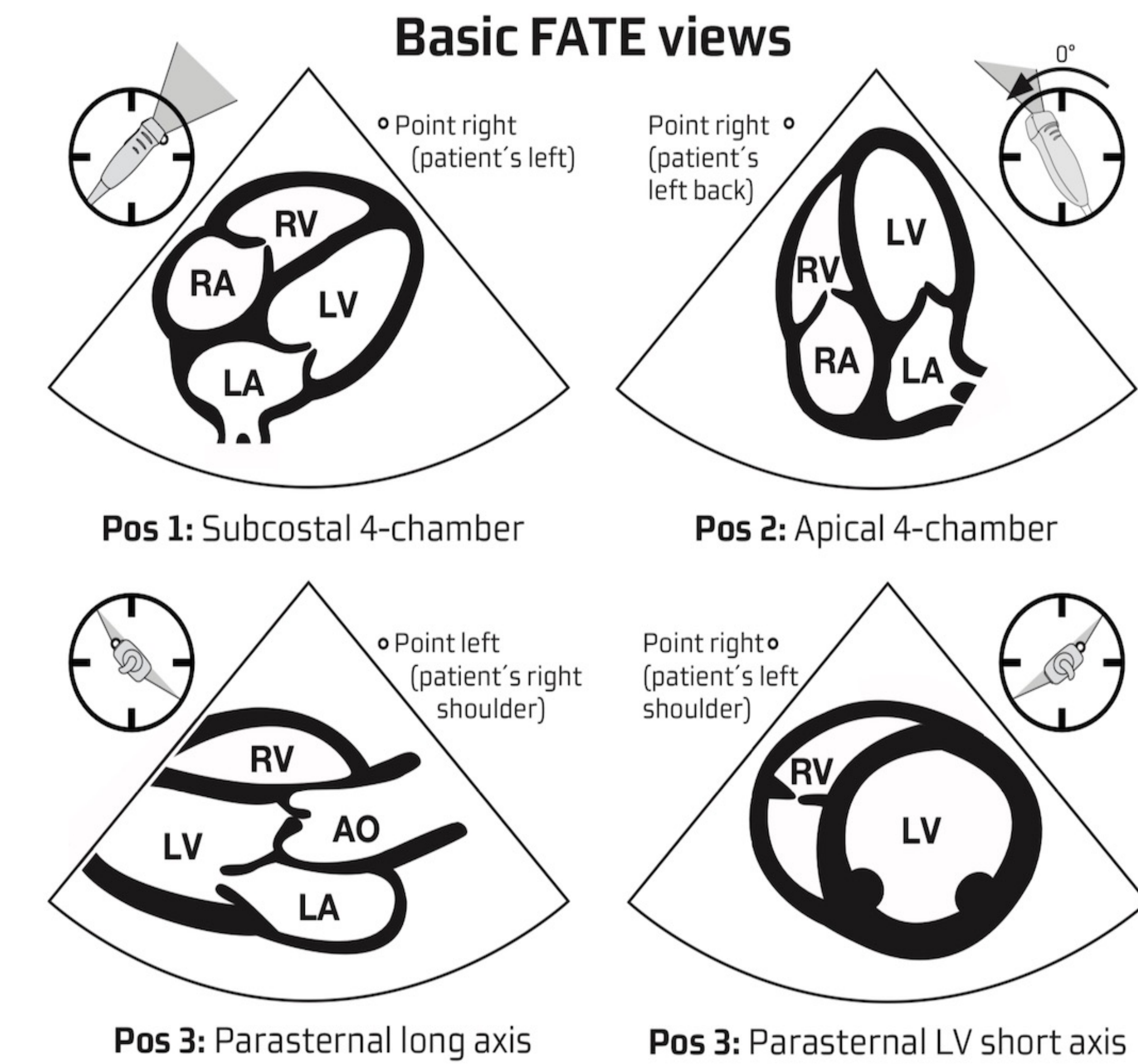


Image Grading

1 = no image to 5 = perfect image
≥ 3 = image quality sufficient for clinical decision-making

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Results:

- 8 novices performed median of 5 [3-8] FCUs in 64 healthy women (ASA ≤ 3 , term ≥ 37 weeks gestation) undergoing elective, scheduled CD
- Images of sufficient quality in 95.3% after SPA and 89.1% after ND
- Image grading associated with novice examiner performing FCU
- Mean grading lower after neonatal delivery ($p < 0.05$, Figure 1)
- No association between image grading and patient age, gestational age, or BMI

Conclusions:

- FCU is highly feasible in the parturient undergoing CD
- Image acquisition and quality may be more challenging after delivery and impacted by the individual performing the FCU

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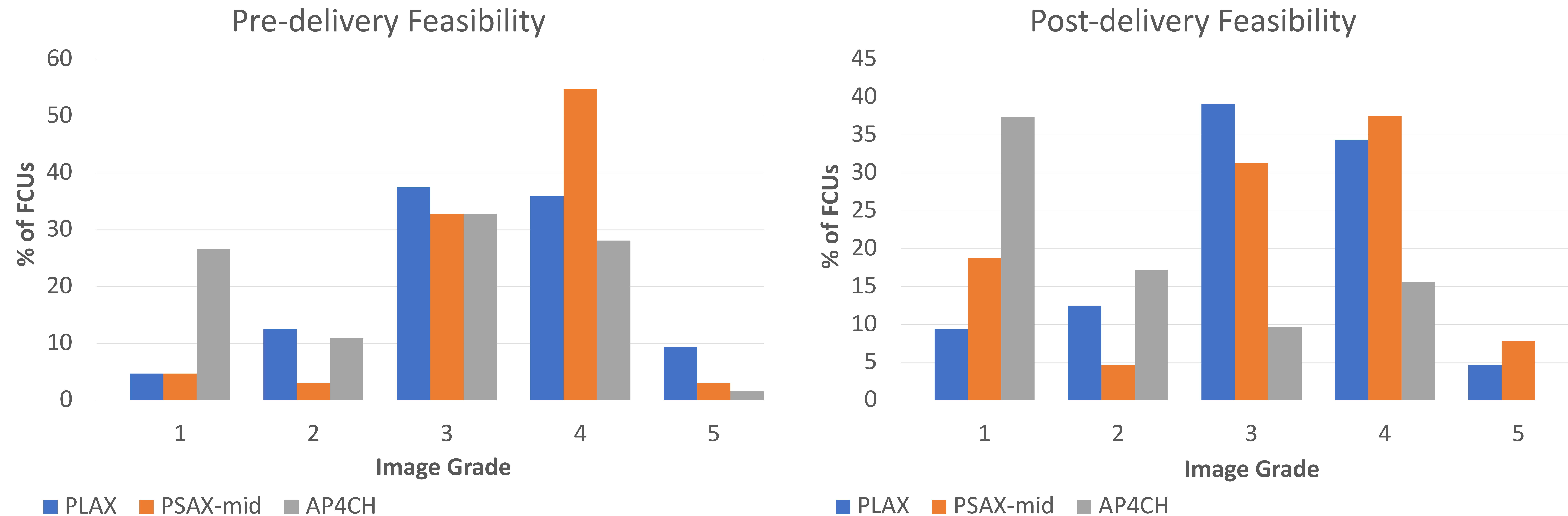


Figure 1. Feasibility of performing FCU after SPA (pre-delivery) and after ND (post-delivery).

PLAX: parasternal long-axis view; **PSAX-mid:** parasternal short-axis mid-papillary view, **AP4CH:** apical 4-chamber view