Three-dimensional speckle tracking of the right ventricle: Implications on survival in pulmonary hypertension


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• No conflict of interest

• Funding sources:
  – University hospital of Nice, France (AO2I 2013; AOI 2014)
  – European Union 7th Framework Programme (VP2HF FP7-2013-611823)
  – European Research Council (MedYMA ERC-AdG-2011-291080)
Background / Objectives

• Survival in PH relates to RV function
• 2D analysis of RV anatomy and structure is limited
• Little is known about 3D RV global and regional function

3D RV deformation differences between healthy controls and PH adult patients?
Implications of global and regional 3D RV shape and deformation on clinical condition and survival in PH?
Methods

- Prospective cohort study
- 104 PH patients
- 34 healthy controls
Results

- Highest deformation: lateral and inferior wall
- RV shape and deformation related to NYHA class

- Gradual RV dilatation
  - Spherical RV shape in advanced PH patients
Results (2)

- Median follow-up: 6.7 months [5.8-7.2]
  - 16 patients (15.4%) died from PH

- RV Global area strain > - 18%
  - Independent predictor of survival
  - Identifies high-risk PH patients with a 48%-increased risk of death

- ICC for inter-observer variability: 0.90
Conclusion

• RV shape and strain patterns are gradually deteriorated in PH
  – Independent prognostic marker in PH
• 3D area strain helps understand the RV deformation
  – And could help stratifying the risk in PH patients

Perspectives

• Development of RV-dedicated 3D speckle-tracking software
• Generalization and validation of 3D RV study
• Development of 3D regional assessment

Thank you