

QIBA Proton Density Fat Fraction Biomarker Committee (PDFF BC) Call

Thursday, July 2, 2020 at 3 p.m. (CT)

Call Summary

Participants

Takeshi Yokoo, MD, PhD (Co-chair)
Mustafa Bashir, MD
Michael Boss, PhD
Mark Bydder, PhD

Anil Chauhan, MD
Gavin Hamilton, PhD
Diego Hernando, PhD
Harry Hu, PhD

Michael Middleton, MD, PhD
Jonathan Riek, PhD
Suraj Serai, PhD
Andrew Trout, MD

RSNA

Joe Koudelik
Julie Lisiecki

Review of Previous Call Summary

- The 05.07.2020 call summary was approved as presented

Update (Dr. Yokoo)

- The paper on the round-robin project was submitted to *Radiology* for review and Dr. Yokoo thanked everyone for their contributions
- This paper describes how PDFF has performed well collectively on all scanners
- It also includes new additional information on how PDFF performs with phantoms
- The BC will return to Profile writing now that knowledge gaps have been illuminated by the Calimetrix phantom studies

Profile Template Review

- Dr. Yokoo is working on the Executive Summary
- The group discussed two potential claims:
 - Cross-sectional claim - (need reference standard for bias)
 - Phantoms were used as a reference standard to determine the bias of PDFF
 - MR spectroscopy not a good reference standard due to the inherent variability
 - Longitudinal claim: $\pm 5\%$ change = true change
 - Claim language will need to be clarified
 - Dr. Boss suggested asking Dr. Obuchowski to review the wording for the claims
 - It would also be helpful to provide an example for each claim
- Profile activities (section 3) were discussed
 - RDC = Reproducibility coefficient
 - RC = Repeatability coefficient
 - Some minor edits need to be reviewed in this section
- Imaging Data Acquisition (section 3.6)
 - As acquisition can be 2D or 3D, more detail re: requirements needed
 - Round-robin study compared vendor protocols to the QIBA recommended protocol
 - GE vs. QIBA protocols: no difference found
 - Siemens vs. QIBA protocols: the QIBA protocol performed better
 - Philips vs. QIBA protocols: the vendor protocol performed better
 - A critical review of why the Philips protocol outperformed the QIBA protocol is needed
 - LipoQuant (LQ) is not officially part of the paper though the BC has acquired data
 - Raw PDFF values from LQ have been underestimated due to phantom temperature issues
 - Temperature-corrected LQ data is now available and may be used to justify the inclusion of LQ data in the paper
 - It may be necessary to explain the processing difference between phantom data vs. in vivo data

- The data will need to be reviewed again from a bias perspective
- Dr. Yokoo wants to include only the data acquisition techniques that have been validated and published in the literature
 - There may be other techniques that work and are in conformance, but no published data are available to validate these techniques, e.g., T2* map sequence used by GE; to be discussed on the August BC call
 - Dr. Hernando has a related paper that he will send to Dr. Yokoo for reference
- Image QA and QC were discussed and will need to be revisited
 - Image QA was described as making sure that equipment is working correctly prior to use (up front), e.g., scanner calibration
 - Image QC was described as checking the equipment quality while in using, e.g., checking that the images look okay
 - Drs. Middleton, Bashir and Riek to reevaluate the image QA and QC sections

Next Steps

- BC members to revisit outstanding issues during the next call in August

Action items

- Dr. Hernando to send the latest version of a paper he has been working on to Dr. Yokoo for reference
- Drs. Middleton, Bashir, and Riek to collaborate on writing the Profile sections for Image QA and QC

Next QIBA PDFF BC call: Thursday, August 6, 2020 at 3 p.m. CT

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