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

Thursday, August 1, 2019 at 3 PM (CT)

Call Summary

Participants			**RSNA**
Mustafa Bashir, MD	Harry Hu, PhD	Nancy Obuchowski, PhD	Susan Stanfa
Mark Bydder, PhD	Michael Middleton, MD	Suraj Serai, PhD	
Gavin Hamilton, PhD			

Moderator: Harry Hu, PhD

Review of Previous Call Summary

- The 06.06.2019 call summary was approved as presented

Multi-Vendor Calimetrix Phantom Study Update (Dr. Hu)

- The only reported issue occurred with PDFF vendor protocols for 1.5T and 3T Siemens machines at CHoP (Dr. Serai), Duke University (Dr. Bashir), Mayo (Dr. Shu) and Nationwide Children's Hospital in Columbus, OH (NCH) (Dr. Hu)
    - Water and fat PDFF maps were swapped, rendering the data unusable
    - Siemens addressed the issue through a retrospective reconstruction patch for use at time of scanning
        - Initially, the reconstruction data from the 3T machine/protocols looked acceptable; but not from the 1.5T
        - Siemens corrected the issue in the delayed software/algorithm recon
        - Updated reconstruction protocols were delivered to the four Siemens sites and they were asked to standardize software versions and parameters
    - Dr. Hu developed a re-scanning phantom shipping schedule for the four Siemens sites
        - Re-scanning has been completed at Duke University and CHoP, using an in-line tool to correct the image swap; the retro reconstruction provided the correct PDFF map
        - Dr. Serai (CHoP) to send the phantom to Dr. Hu (NCH) on Monday, August 5
        - Once the phantom has been rescanned at Mayo Clinic, the round-robin testing will be concluded
- The original purpose of the round-robin study was to determine range of bias in PDFF measurement using various vendor techniques at 1.5T and 3T
    - Three protocols were run at each site: vendor-specific, QIBA-recommended and LipoQuant
    - LipoQuant had larger than expected systemic bias toward lower fat fraction
    - During a prior t-con, Dr. Yokoo recommended that sites run routine QA scans, confirming that the scanners have been rebooted
    - Dr. Bydder at UCLA was contacted re: his insights into the LipoQuant bias issue on GE scanners
    - Simulations were conducted and LipoQuant was found to be more sensitive to chemical shifts; it is expected to be more sensitive to temperature as well
- An important outcome of the study will be the resulting paper, which will inform the Profile Claims
- To avoid delaying progress by pursuing three poor correlations, the manuscript will be split into separate papers: one for vendor-specific and QIBA-recommended protocols and the other for LipoQuant results
- Dr. Hu to forward study results to Drs. Bydder, Hamilton and Middleton; it was noted that all information can be found in the PDFF BC Dropbox

Next call: Thursday, September 5, 2019 at 3 PM CT

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