AIUM/QIBA
Ultrasound Volume Blood Flow Biomarker

MINUTES 2017-10-02

Attendance:

P. Carson, B. Fowlkes, O. Kripfgans, M. Lockhart, T. Lynch, R. Managuli, K. Minton, S. Pinter, J. Rubin

I. Update on data collection

- Proposed 9 combination, 6 have been performed. One additional one is lined-up. Two more combinations coming soon.
- Following up with manufacturers on some systems with issues found on some systems.
- Process is progressing well.
- Grateful for all participating sites and their effort.
- Deadline of Sep 30, 2017, has been extended to March 31st, 2018.
- Have submitted progress report documenting phantom testing.
- Two systems in the loop, working with manufacturers on obtaining correct data for volume flow.
- Performance on tested systems overall good. Maybe a negative bias. Variation from system to system. Overall ±20% error at most.
- Reviewed flow dependence across three systems. One system seems to be low. Working on as to why.
- More variance on gain dependence. This is expected, as with low gain signal to noise should be low. With increasing gain, the volume flow converges. This can be substantial blooming on the screen, but volume flow is still correct due to the partial volume correction method.
- There is currently a uniform processing procedure. We need to see if this still holds when additional systems are added.
- Also looking at GE E10 Voluson performance, even though not currently included in QIBA task. Advantage of having 2D matrix probe, much like the Philips Epiq system. Rapid data acquisition.
- Toshiba has added script to allow for collecting x-number of volumes automatically.
- Currently on Logiq E9, each volume has to be collected individually.
- Mark Lockhart: Very helpful to have had Stephen on site to help with data acquisition.
- Stephen Pinter has improved instruction set. Most important update was on postioning the c-plane and how to set gain.
- Data flow is always pre-tested by asking each site to provide a dataset to UM before a site-visit.
- Ravi Managuli: Interrogating about plan of data collection and planning of on-site testing.

II. Other discussion

- Paul Carson: Would multiple scattering and reverberation affect volume flow acquisition and computation. Ted Lynch: Is doable with currently phantom methods, need to increase scatterer concentration. Can adjust sound speed in layers (multi-layer pour) throughout the phantom. Is not currently asked for from customers. Brian Fowlkes: Can maybe be added on a current phantom? Ted: Can make slabs with speed varying from 1400 to 1600 m/s. Paul: Duke graduate has worked on abdominal aberration. Brian: Would need some initial demonstration to show the influence on the flow. Paul: Wall and clutter could have influence on flow: Jonathan Rubin: But only time varying clutter. Brian: Reverberation could add flow to unexpected spatial location. Methods that would suppress such could potentially help.
- Other questions include: What errors arise when moving from phantom to in vivo, with additional moving structures, such as soft tissue motion. A clinical round robbin would be helpful, however, ideally 3 platforms would need to interrogate the same in vivo circumstance.
- RSNA meeting will be on Wednesday afternoon of RSNA. We will get the exact time and location to the committee.