QIBA PET Amyloid Biomarker Committee

13 May 2016 at 9:00 AM CT (GMT-6)

Call Summary Notes Provided by Dr. Anne Smith

In attendance:			**RSNA**
Satoshi Minoshima, MD, PhD (Co-Chair)	Gregory Klein, PhD	Rathan Subramaniam, MD, PhD, MPH	Joe Koudelik
Anne Smith, PhD (Co-Chair)	Dawn Matthews, MS, MBA	John Sunderland, PhD	Julie Lisiecki
	Nancy Obuchowski, PhD	Jean-Luc Vanderheyden, PhD	

Image Analysis Workstation Conformance Task Force

- Dawn and Nancy will lead a sub-group to develop an Image Analysis Workstation Conformance procedure for Section 4 of the Profile
    - Will communicate with Paul Kinahan for digital DRO ideas

QIBA Round-6 Project Proposals

- Four PET Amyloid Projects were submitted for Round 6 funding
    - Projects were attached to meeting invite, please read and give feedback to PIs for suggested changes
    - Please send suggested ranking of projects to co-chairs
    - PIs have been requested to reduce their budgets as much as possible since we have several submitted projects and only limited funding
    - PIs need to resubmit revisions by May 23rd to RSNA staff

Claim Discussion

- No major revisions were requested of the current Claim wording
- Rathan's meta-analysis abstract will be sent to the entire group
- Agreed to use 5-8% for the Repeatability Coefficient in the Claim if at all possible (current version is 10-12%)
    - If Rathan can get Flurbetapir price lowered, he will rescan 30 patients from the IDEAS study to have additional test-retest data to analyze
    - Rathan will try to convince other sites to do the same
    - Anne will contact radiopharmaceutical vendors to see if they may have this information internally for their specific tracer
    - Is there any chance the ADNI data could be used for this analysis as well?
- If we resolve the Repeatability Coefficient in the Claim and the Image Analysis Workstation conformance procedure, this should close out the needs for Section 4 in the Profile

Additional documents (see page 2): Submitted RSNA 2016 Amyloid Abstract

PDF of PowerPoint slides – available on QIBA wiki

MAY Nuclear Medicine WebEx Schedule

Committees (Fridays, 9 am CT):	**SPECT Task Forces: (Tuesdays, 2 pm CT)**
• May 20: SPECT BC	• May 17: Phantoms / DRO Group – Drs. Dickson & Zimmerman
• May 27: Combined NM BCs (TBD)	• May 24: Clinical / Literature Review – Dr. Seibyl (TBD)

Submitted RSNA 2016 Amyloid Abstract (for reference):

Authors:
Sara Sheikhbahaei, Nancy Obuchowski, Victor L. Villemagne, Rathan M Subramaniam

Title: A meta-analysis of Test-retest repeatability of Amyloid PET imaging with ^{11}C-PIB and ^{18}F-labeled amyloid radiotracers in Alzheimer's disease patients and healthy controls

Background: In this meta-analysis we aim to determine the repeatability of amyloid PET imaging with ^{11}C-Pittsburgh compound-B (^{11}C-PIB) and ^{18}Fluorine labeled radiotracers using the available literature.

Methods: Systematic electronic search were performed in PubMed and EMBASE (last updated in Jan 2016) to identify studies addressing the test-retest repeatability of amyloid PET imaging with ^{11}C-PIB and ^{18}Fluorine labeled radiotracers in patients with Alzheimer disease or healthy controls. The individual patient data or the mean test-retest variability (TRV%) and the standard deviation (SD) of two PET tracer retention measurements were extracted from the eligible studies. The study authors were contacted for more information and for including any grey literature. We used the average neocortical SUVr as a measure of amyloid load. The reference region was the cerebellar cortex across all studies. The percent repeatability coefficient (RC%) were used as an index of absolute reliability. The pooled estimates of mean TRV% along with its SE and the RC% with bootstrapped 95%CI were generated for summary effect.

Results: A total of seven studies were included in this individual patient data meta-analysis. Four studies evaluated the test-retest variability of ^{18}Fluorine labeled amyloid tracers (Florbetapir, AZD4694, Flutematol, and Florbetaben). The test-retest amyloid PET studies were performed between 1 to 4 weeks apart. The pooled mean TRV% for average cortical SUVr was 2.77 (SE=0.75) for patients with Alzheimer's disease (n=26) with a RC% of 10.36% (4.76-14.92). The pooled mean TRV% for average cortical SUVr was 3.12 (SE=1.39) in healthy controls (n=22) with a RC% of 10.41 (3.33-20.3).

Three studies evaluated the test-retest variability of ^{11}C-PIB amyloid imaging. The test-retest amyloid PET studies were performed on same day and up to 60 days apart. The pooled mean TRV% for average cortical SUVr was 4.33 (SE=0.25) for patients with Alzheimer's disease (n=12) with a RC% of 15.4% (8.49-20.05). The pooled mean TRV% for average cortical SUVr was 3.61 (SE=0.59) in healthy controls (n=16) with a RC% of 9.38% (7.55-10.92).

Conclusion: ^{18}F labeled amyloid imaging appears to have lower TRV% for neocortical SUVr compared to ^{11}C-PIB, particularly in patients with Alzheimer disease.

Clinical relevance/Implications: The repeatability coefficient of ^{18}F amyloid radiotracers is about 10% for neocortical SUVr in both Alzheimer's disease patients and healthy controls. This effect should be considered when using neocortical SUVr as an outcome measure for assessing anti-amyloid therapy.

Link to PDF for PowerPoint Slides from 5/13 Amyloid BC WebEx