ADNI
Alzheimer's Disease Neuroimaging Initiative

MR Imaging Teleconference Minutes
8/20/2019

Agenda

1. **Review July 2019 Teleconference Minutes (Appended Below)**
   a. Minutes will be posted to LONI website. - http://adni.loni.usc.edu/methods/documents/

2. **Update on Siemens DTI Patch (Reid)**
   a. On the last call Lara Stables brought it to the ADNI MRI Core's attention that there was a DTI Patch being released by Siemens which may have effect on the ADNI DTI series. After some research into the patch we determined that the patch will not affect the ADNI DTI series as it is supposed to be acquired as a straight axial and the patch was needed for severely oblique scans.

3. **ADNI Deliverables – Updated Status**

https://ida.loni.usc.edu/pages/access/studyData.jsp?categoryId=14&subCategoryId=30

4. **ADNI3 Data Acquisition Description Dictionary (Attachment)**
   a. Documents explaining vendor difference for each sequence
   b. Basic vs. Advanced (DTI and fMRI)
   c. Field Map (why some don't have it)

4. **Anyone using the Field Maps?**
   a. Should it be removed from newly distributed protocols?

5. **ADNI publications**

a. Mayo lab:
    a. Vemuri et al., Neuroimage 2015. Accelerated vs. unaccelerated serial MRI based TBM-SyN measurements for clinical trials in Alzheimer's disease. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4456670/
    b. Kantarci et al., Alzheimers Dement 2013. Focal Hemosiderin Deposits and β-Amyloid Load in the ADNI Cohort. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3770782/
    c. Jones et al., Brain 2016. Cascading network failure across the Alzheimer's disease spectrum. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4805086/

b. Outside labs using our data:
    a. Landau et al., Amyloid negativity in patients with clinically diagnosed Alzheimer disease and MCI. (Uses our TBM-SyN measures) https://n.neurology.org/content/86/15/1377
    b. Paper from Bioclinica using fMRI metric (David Scott)

c. Outside labs using raw ADNI data:

6. ADNI3 Breakdown

a. **60/60 Certified Systems**

b. **1185 subjects received. (19 Failed Studies)**
    i. 275 Subjects scans with Siemens VE11C
    ii. 441 Subject scans VB17-VE11B
    iii. 190 Philips 3.2.3 – 5.4.0
    iv. 63 Subject scans with GE 24x
    v. 212 Subject scans with GE 25x-27x

c. **Experimental Sequence Breakdown**

i. 2D PASL vs. 3D PASL vs. 3D pCASL
    1. Axial 2D PASL – 324
    2. Axial 3D PASL – 556
    3. Axial 3DpCASL - 275

ii. Axial rsfMRI vs. Axial MB rsfMRI

1. rsfMRI – 948
2. MultiBand fMRI - 235

iii. Axial DTI vs. Axial MB DTI

1. DTI – 941
2. MultiBand DTI – 236

7. Next Meeting 9/17/2019

MINUTES:

Can we segregate 2D ASL? People need to select that they understand that there are substantial limitations to that data.

Karen will have to look into that.

Cliff: older scanners and operating systems cannot do 3D. We can send a list of what's what. If someone requested ASL, the default would be to send them only 3D. If they then wanted it, they could get the 2D, which is much lower quality by all of Duygu's metrics.

Karen: Send me what you are calling the recipe and I will look through it.

Duygu: CC me on that as well.

Minutes were approved.

Paul Thompson: TBM completed processing for all ADNI2. They are checking that results make sense and expect to send the results to ATRI in a couple of weeks.

Their ADNI3 DTI processing pipeline is currently in testing.

Charlie DeCarli: up to date minus about 200 ADNI3 subjects.

Duygu: Cross-sectional analysis for 5000 ADNI2 subjects has been sent. There is also a set of 1 year longitudinal analyses. They updated their ADN2 longitudinal analysis pipeline; they are about 40% the way through processing the ADNI2 subjects (with the new pipeline).

They have cross-sectional analysis complete for 800 ADNI3 subjects, still working on 100 ADNI3 subjects. ADNI3 GE ASL analysis is complete, they are QCing the data and expect to have it ready to upload at the next quarterly upload (October).

Nick Fox: Working on 100 ADNI3 subjects for brain BSI (otherwise up to date). They have changed their Hippocampal volume pipeline- reprocessing the subjects currently.

Cliff: we upload 3 things. NFQ, TBM-SyN, and Microbleeds. To my knowledge we are current up through adni3.

MR data was not showing up on LONI. Cliff takes blame. He had put a hold on asking people to upload data so we could straighten out longitudinal compatibility issues. But it became apparent a few months ago that we weren't going to get it straightened out so we switched courses and our position now is to upload everything and users beware. It's the best we can do. From now on we must pursue that policy through the remainder of ADNI3. Now there seems to be backlog at ATRI/LONI.

Danielle needs to start creating monthly bar charts of numbers of scans that have been sent in by each group, and the total possible number of available scans in that category. Third number is how many processed scans that groups have sent in actually show up on LONI. We need ratios close to 1 on an ongoing basis.

Karen: maybe we're not on the same page.

Analysts send in summaries, CC Danielle and Mike Donahue. something about visit codes and dictionaries. It's not as though someone submits results at 8am and at 10am it's posted/available. There are several sets of checks and import processes. One at ATRI and one at LONI. When there are deadlines there is a mad rush to get it on LONI. But if there's a mad rush we can't get it done in time. Want data to be as checked as possible so we never have to recall data or answer questions.

Cliff: who should be on the email? someone sends in a giant spreadsheet full of data. Who to address it to right now?

Karen: Mike Donahue but I think someone new is taking on that role at ATRI. I can be CC'd so I know something's coming, but the agreement per Mike Weiner is that we don't do anything until it goes through ATRI.

Cliff: Mike Donahue is away on paternity leave.

Duygu: Kai Sun is taking over Mike Donahue's role.

Charlie: we need a portal where we can upload numeric data and global process data. This whole conversation tells me how confusing and unreliable it is. Karen I'm not being critical. But the numeric data needs to go to ATRI folks and they need to join it with appropriate information so it can be

uploaded to be workable. We have no way of tracking where that data is. Each of us has our unique way of uploading the data. I have to go to LONI site to see if the data is there, and if it's not, I have no recourse. So we need to have a tracking system for this.

Cliff: there's a front end and a back end and everything in between is a black box. Someone needs to send around Kai Sun's email. For now he is the front end. We can ask Danielle to provide these monthly updates of number of scans. But I think each group prior to the call needs to do their own accounting. If there's a gap between what you sent and what's there.. Karen what do you suggest?

Karen: I don't always know what's going on either. Once we get the data we process it immediately.

Paul T proposes a google spreadsheet or something with 4 columns for dates of each step. Then we would know whose step it's stuck on.

Charlie: it seems like if we don't see it in a week then we know something is going on.

Cliff: our schedule is quarterly and it has been for years. This results in a rush. But we'll just track it with this spreadsheet that Paul described. Who is going to make it? I'll nominate Danielle since she is the statistician and she's not here. We'll discuss with her when she gets back. Last quarterly uploads were end of July. Next are end of October. Different labs upload different categories.

Duygu: provide everything and don't worry about longitudinal compatibility: are you planning to make an announcement or statement on that? expecting lots of pushback from other cohorts on this. I want this to be known that this position is from the MR core and not from me.

Cliff: pushback from other cores? against what?

Duygu: other cores don't want to have to work on making data compatible. They want to combine everything. They're not happy having to do this work.

Cliff: The response from the core is you can't have it both ways.

Duygu: I think it will be stronger and more solid if this comes from the entire core and it is somehow posted or communicated with the rest.

Cliff: perfect segue into the next agenda item. The field can't have it both ways. Our position is we post it all, with a warning. Toward the end of ADNI3 when there is enough data we'll do the best we can in terms of figuring out what is compatible and combine what we can.

Charlie: What if we create a wiki page that says if you want to do longitudinal analyses here are some of the things you should know. Go down the list of things for each sequence. Give everybody the most data they can have but have some things about buyer beware that we already know, about how certain analyses won't work unless you are mindful.

Cliff: think it's already up there? If you go to the website, the user sees so many documents. The problem is if I was a user and I came in and saw this page it's overwhelming.

Charlie: what we've done to help the user is to add information to see both analysis and image acqusition. We could do the same thing with PASL and other things. Nothing here says beware of longitudinal.

Cliff: I think there is somewhere. I recall writing up a document like that. But I have no clue where to look for it in this blizzard of information.

Karen: I think this would benefit with some kind of road map/primer. Start here.

Cliff: if we redesigned as a group what the user sees, who would we interact with?

Karen: we have some limitations but we can reorganize it.

Cliff: it seems like it's alphabetical. Putting another thing on top just adds more noise to he user. It has to be reorganized.

Karen: I'm not hearing that users are overwhelmed. An overview somewhere does seem necessary.

Cliff: we made a document like that. Where is it? Bret's not here. It was sent by someone to be posted somewhere.

Karen: On our side we will work with some different organization schemes and give them to the group to weigh in. Maybe that information ended up only on the public facing site?

Cliff: we want people to use the numeric data that the MR core produces more. But the overwhelming number of paths presented to the user is a huge impediment. Maybe another heading like "overview" or "start here".

Karen: we could always discuss posting news items about new datasets available, like an advertisement thing.

Cliff: there's a document MR Analysis Manual .pdf. We spent a lot of time putting this together. It describes different sequences etc. At the end is a user beware section. Item #9. But how is a person supposed to know to find and look at this.

Charlie: this is all focused on scanner but we changed acquisitions.

Cliff: item #9.

Rob: see also Bret's spreadsheet.

Cliff: we keep writing these documents to help users navigate and they get posted and they're lost in the forest. Karen we need a section up front that says "overview; read this first" and we can tell you what documents should go there. MR analysis manual is one. Bret's spreadsheets are another. Another is the document that's in this agenda, that we didn't get to talk to. These documents should go up front.

Cliff: need to start generating lists of publications that use various output data. For the next tcon just make a list.