Global Harmonization Group
RT Harmonization in clinical trials QA
International member collaboration
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GHG Proton Subcommittee Conference Call Agenda

Monday, November 4, 2019

Attendees: Markus Stock (co-chair, MedAustron), Paige Taylor (co-chair, IROC), Coreen Corning (EORTC), Catharine Clark (RTTQA), Alejandra Mendez Romero (EORTC RTQA), Rachel Effney (EORTC), Steven Habraken (Netherlands), Liz Miles (RTTQA), Joerg Lehmann (TROG), Antonio Carlino (MedAustron), (Stephen Kry (IROC)

Roll call

Discussion of proton dose calculation errors in lung:

Discussed challenges of proton dosimetry in heterogeneous media, particularly identifying phantom materials that are "proton equivalent". Many proton centers failing anthropomorphic lung phantom end-to-end test. Large dose discrepancies observed in the target between measured and predicted (TPS) dose when pencil beam algorithms are used. When these data were recalculated with Monte Carlo algorithms, absolute and relative dose comparison with measured data improved drastically. In the US, Monte Carlo will now be required for proton lung clinical trials.

Future areas of research: how does Monte Carlo improve dose calculations in other heterogeneities? How do we address dose to water vs. dose to medium for proton therapy?

Further discussion: UK developing randomized proton vs. photon lung trial.

Variety of trials looking into proton therapy include: H&N (TORPEDO – randomized 2:1 proton:photon), breast, glioma, esophagus, NSCLC, lymphoma, oropharynx, hepatocellular carcinoma…

Future Teleconference Ideas:

- Challenges of randomized photon vs. proton trials
- Audit activities: Review various ion therapy QA groups and their audit activities
- Clinical trial QA best practices: Discuss the balance between too little or too much QA, appropriate action levels, and statistical implications
- Robust optimization: Discuss implementation and how QA centers can compare methods across multiple institutions
- Variable RBE: Invite representatives from Mayo and MedAustron to gives overviews of their TPS capabilities, special treatment planning considerations; discuss what data needs to be collected/reviewed for clinical trials

Action Items:

- Paige: schedule next teleconference