Imaging aspects of dementia

Claes Håkansson, MD
Diagnostic Radiology, Institution for Clinical Sciences, Lund University

Main Supervisor:
Danielle van Westen, MD, PhD, Ass Prof

Reviewers:
Johan Wikström, MD, PhD, Prof, Uppsala University
Johan Wasselius, MD, PhD, Ass Prof, Lund University

Co-Supervisors:
Isabella Björkman-Burtscher, MD, PhD, Prof
Oskar Hansson, MD, PhD, Prof
Elisabet Londos, MD, PhD, Prof
Markus Nilsson, PhD, Ass Prof
Gustav Torisson, MD, PhD

Diagnostic Radiology, Institution for Clinical Sciences, Lund University

Lund 28th May 2019
Background

In dementia early diagnosis is important for treatment and preservation of function. Subjective cognitive decline (SCD) is an early symptom in many dementias. In the diagnostic work up structural imaging has been used to exclude ‘other’ causes of dementia but structural findings associated with dementia should also be reported. The objective is to evaluate what extent they are reported in clinical practice and their impact.

Method

In the first study we investigated how structural findings associated with dementia were reported on computed tomography (CT) performed as part of a diagnostic work up of SCD. Radiology reports were compared with the results of a second reading of 197 exams. The performances of neuroradiologists and general radiologists were compared. In the second study a similar method was used to evaluate how the introduction of contextual and structured reporting affected the reporting of structural findings associated with dementia, 111 exams performed before were compared to 125 exams performed after this introduction. The performances of senior and junior neuroradiologists were compared.

Preliminary results

The first study showed that structural findings associated with SCD and dementia were severely underreported. General radiologists performed worse compared to neuroradiologists. The second study showed that the reporting of structural findings increased significantly after introduction of contextual reporting. Senior neuroradiologists performed better than junior neuroradiologists [1, 2].

Implications

Introduction of a contextual reporting standard and structural reporting in assessment of CT performed as part of the diagnostic work up of SCD. Increased accuracy and reproducibility of the radiology reports. Future work will include comparison of the diagnostic capabilities of CT and MRI in SCD and a longitudinal follow up study of patients with SCD to assess clinical impact of early structural changes.
Publications and manuscripts

1. **Håkansson C**, Torisson G, Londos E, Hansson O and van Westen D. Structural imaging findings on non-enhanced computed tomography are severely underreported in the primary care diagnostic work-up of subjective cognitive decline. Neuroradiology 2019;61:397-404

2. **Håkansson C**, Torisson G, Björkman-Burtscher I, Londos E, Hansson O and van Westen D. Contextual reporting increases the percentage of correctly classified radiology reports and may increase accuracy in the primary care diagnostic work up of subjective cognitive decline *(manuscript)*