The Cancer and Chemotherapy Working Group – ENIGMA Consortium

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Cancer-Related Cognitive Impairment (CRCI) is COMMON but its causes are UNCLEAR

- While cancer remains the second leading cause of death in the United States, recent improvements in the diagnosis and treatment of cancers have led to an increase in cancer survivorship.
- According to the National Cancer Institute, there were 15.5 million cancer survivors United States as of January 2016, equal to 4.8% of the general population.
- By 2026 this number will increase to 20.3 million survivors, with 14 million surviving at least 5 years.
- Given these trends, cancer researchers have become increasingly concerned with the morbidity associated with cancer survival and how this affects one’s quality of life.
- CRCI refers to cognitive dysfunction due to cancer itself or its therapy.
- “Chemobrain” is a type of CRCI that can occur in up to 78% of cancer survivors.

Brain imaging is a PRIMARY method to study CRCI, but it is HARD to do a LARGE study

- Brain imaging with MRI is an ideal method to study what parts of the brain might be affected by CRCI.
- But it is very difficult for a single research center to do a large enough brain imaging study.
- Recent small CRCI brain imaging studies primarily in breast cancer survivors suggest that there are abnormalities in brain size and white matter integrity compared to controls.
- But results have been variable and we need larger confirmatory studies in not only breast cancer survivors, but in other cancers too.

USC is home to the ENIGMA Consortium that performs the WORLD’S LARGEST brain imaging studies

- USC is home to the ENIGMA Consortium that performs the world’s largest brain imaging studies by “crowdsourcing” data from scientist around the world
- There are currently 37 Working Groups, 900 scientists, 230 sites, in 39 countries world-wide engaged in 166 projects.

In order to study CRCI, we have recently formed the ENIGMA Cancer and Chemotherapy Working Group (CCWG)

- We currently have 11 sites in the CCWG around the US, Europe and Asia, including the UK Biobank Imaging Study, the world’s largest population biobank.
- We intend to keep growing the CCWG to conduct the largest CRCI brain imaging studies ever done.

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