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ACTA PSYCHOPATHOLOGICA

Radiation Therapy in the treatment of Alzheimer's Dementia: Overview of the Rationale

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Abstract

Radiation therapy has been used in the treatment of various non CNS amyloidosis. In peer reviewed article for sites such as lung , trachea , head and neck and renal , the use of low dose radiation has provided early and durable resolution of the amyloid related symptoms

Our initial investigation of this potential began after we completed a review of adults who suffered from Downs Syndrome and who also had been diagnosed with ALL and had received PCI. We were unable to find any death certificate indicating AD as a cause of death although it is well known that up to 90% develop AD by time they reach 45 years

Based on these facts we initiated a series of investigations, both basic science and animal studies to determine if low dose radiation might play a role in the treatment of AD

We investigated amyloid plaque burden, Tau pathology development and neurocognitive testing. These results will be presented at this meeting

The positive results we found has led us to the start of a Ph1 clinical trial that will initially evaluate 2 radiation dose sequences (5 x 200 cGy and 10 x 200 cGy) to determine any side effects but also to define with Amyvid PET scans and neurocognitive testing the impact of this treatment.

We will also present our idea's regarding future studies including hypofractionated radiation regimens and targeted therapy

Biography

Dr Fontanesi has been in practice more than 25 years .He received his medical education from American University of the Caribbean and performed his internship at Ellis Fishell State Cancer Center in Missouri. He completed his Therapeutic Radiology residency at St. Mary's Hospital and Medical Center/West Coast Cancer Foundation. He also completed a Brachytherapy fellowship at the University of California – Davis/Veterans Administration Hospital.

He followed his fellowship by becoming an attending physician at St Judes Children's Research Hospital where he was instrumental in developing the stereotactic radiation program along with re-introduction of brachytherapy in children.

He was one of the initial investigators in the AD program at William Beaumont Health Systems. He has over 100 peer reviewed publications and book chapters to his credit and continues to do both basic and clinical research.

Publications

1. Marples, B., McGee, M., Callan, B.S., Bowen, S.E. Thibodeau, B.J., Michael, D.B., Maddens, ME., Wilson, G.D., Fontanesi, J and Martinez, A.A. (2015). Low dose cranial irradiation significantly reduces beta amyloid plaques in the brain and improves cognition in a murine model of Alzheimer's Disease (AD) . Radiother Oncol. 118: 43-51.
2. Wilson. G.D. and Marples, B. (2016). A new use for an old treatment: Radiation therapy and Alzheimer's disease. Radiation Research 185:443-448
3. Kurrus JA, Hayes JK, Hoidal JR, Menendez MM, Elstad MR. (1998). Radiation therapy for tracheobronchial amyloidosis. Chest. 114:1489-1492.
4. Poovaneswaran S, Razak AR, Lockman H, Bone M, Pollard K, Mazdai G. (2008).Tracheobronchial amyloidosis: utilization of radiotherapy as a treatment modality. Medscape Journal of Medicine 10:42.
5. Patrias LM , Klaver AC et al (2011) Effects of external baem radiation on in vitro formation of Abeta 1-42 fibrils and preformed fibrils Radiat Res 175(3):375-81
6. Neuner GA, Badros AA, Meyer TK et al (2012) Complete resolution of laryngeal amyloidosis with radiation treatment. Head Neck 34(5): 748-52

Citation: James Fontanesi, Radiation Therapy in the treatment of Alzheimer's Dementia: Overview of the Rationale, Dementia Care 2020: 11th International Conference on Dementia and Dementia Care, Paris, 19-20 February 2020, pp. 09