

## Role of omega 3 fatty acid in chemo-therapy induced cognitive decline

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Dear Madam, One of the toxic side effect of chemotherapeutic agents in the brain, now more frequently encountered due to a rising number of cancer survivors who received chemotherapy, is chemo induced cognitive decline, known more popularly in clinics as chemobrain or chemofog.<sup>1</sup> Cancer-related cognitive impairment (CRCI) is encountered in survivors of chemotherapy treated central nervous system and non central nervous system malignancies.<sup>1</sup> CRCI can happen any time during and after the chemo.<sup>2</sup> CRCI affects the executive function, memory, attention, concentration, language, processing speed and other domains of cognition culminating in reduced treatment compliance, poorer quality of life and ultimately decreased life span.<sup>2</sup> CRCI can exist in mild to severe form and lasts several months to years post treatment.<sup>2</sup> Novel therapeutic approaches; both pharmacological and non pharmacological have been under study to help prevent and alleviate the chemofog.<sup>1</sup> The role of dietary long-chain omega 3 fatty acid, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), commonly referred to as marine fatty acids is increasingly being studied in relation to cognition. Omega-3 polyunsaturated fatty acids (PUFAs) are essential immune-nutrients for our body in the form of brain lipid constituent.<sup>3</sup> They can only be taken from external sources such as cold water fish salmon. Low levels of omega 3 poly unsaturated fatty acids (pufas) are found to be directly proportional to neuropsychiatric pathologies such as cognitive decline, depression, anxiety and neurodegenerative diseases.<sup>4</sup> The role of dietary marine fatty acid is linked with improvement in the cognitive

function by diminishing cognitive decline and healing of chemo brain through reducing neuroinflammation, oxidative stress and neural apoptosis.<sup>5</sup> Omega-3 PUFAs if used as an adjunct therapeutic agent in cancer patient on chemotherapy, can contribute substantially to an improvement of the life quality of survivors by maintaining their cognitive function.<sup>5</sup> Future studies should be directed to study the role of omega-3 PUFAs with respect to cognition in our population as well.

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