GENETIC POLYMORHISMS OF SEROTONIN TRANSPORTER AND MONOAMINE OXIDASE; AND RESPONSE TO SSRI ANTIDEPRESSANT DRUGS IN TERMINAL CANCER PATIENTS

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The serotonin transporter (SERT) and monoamine oxidase (MAO) play a crucial role in monoaminergic neurotransmission and in mood regulation, and are the molecular target of antidepressant drugs. The 5-HTTLPR and VNTR polymorphisms were identified in the promoter region of SERT and MAO-A respectively, influencing the functional activity of the genes. These polymorphisms, and their interaction with stressfull life events, contribute to determine the mental suffering of the patients.
The aim of the research is the study of the role of these polymorphisms in the mental suffering of terminal cancer patients, in their response to SSRI antidepressant therapy. The 73 terminal patients considered (38 males, 35 females, average age= 71, min-max 48-95) were admitted in the Hospice "Pineta del Carso" having different types of cancer. The patients were assessed psychometrically using the scales Hospital Anxiety and Depression Scale (HADS) and Mini-Mental Adjustment to Cancer (Mini-MAC), at the beginning and after 14 days of therapy with sertraline or citalopram. The patients were genotyped for 5-HTTLPR and VNTR polymorphisms of SERT and MAO.
The results obtained indicate that the patients with different allelic variants of the polymorphisms cosnidered conferring various functional activity display similar scores on the psychometric scales used. When the polymorphisms of the patients is considered, both antidepressant drugs significantly reduce the HADS score depression, while sertraline significantly reduces also HADS anxiety, and Mini-MAC hoplessness-helplessness, anxious preoccupation, and avoidance. The antidepressant effects of citalopram and sertraline are significant only in the patients with SERT genotype conferring high functional activity. Furthermore, sertraline reduces anxiety and hopelessness-helplessness, and increases fighting spirit, only in the patients with the genotype conferring high functional activity. The antidepressant effects of both drugs occur in the patients with high functional activity of MAO VNTR; sertraline also reduces the fatalism in these patients.
These preliminary results appear ro encourage further investigation on the pharmacogenetics of antidepressant drugs in palliative cancer care.