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Overexpression of *Drosophila RFX3* and induces apoptosis interferes with differentiation of photoreceptor cells

Toshimi Sugimoto, Takako Ueda, Hideki Yoshida, Akira Murakami and Masamitsu Yamaguchi
Kyoto Institute of Technology, Japan

Regulatory factor X (RFX) is a protein containing a characteristic DNA binding domain that is called RFX domain. Members of the RFX family are known to be present in human, mouse, *Drosophila, Caenorhabditis elegans, Schizosaccharomyces pombe* and *Saccharomyces cerevisiae*. Two RFX proteins, *Drosophila* RFX (dRFX) and dRFX2 have been identified in *Drosophila* so far. It is known that dRFX is involved in the differentiation of central and peripheral nerves, while dRFX2 is essential to the cell cycle progression and it may be involved in regulation of apoptosis. A novel protein, dRFX3 carrying RFX domain was identified by a *Drosophila* genome database search. dRFX3 is a likely homolog to the human RFX5, because of a significant sequence similarity in RFX domains between these two proteins. Two lines of transgenic fly carrying the HA-dRFX3 cDNA were established. Adult flies expressing dRFX3 specifically in the eye and the wing imaginal discs exhibited severe rough eye and atrophied wing phenotypes, respectively. 5-Bromo-2'-deoxyuridine incorporation assays and the immunological detection using anti-cyclin B antibody indicated that the overexpression of dRFX3 in the eye imaginal discs exerted no effect on the cell cycle progressions. On the other hand, overexpression of dRFX3 in the eye imaginal discs interfered with the differentiation of R2/R5 photoreceptor cells and also induced apoptosis. These data suggest that the dRFX3 plays a negative role for the differentiation of R2/R5 photoreceptor cells and plays a positive role in the regulation of apoptosis.

myamaguc@kit.ac.jp

Prevalence of malnutrition in oncology patients: Our experience in Cardarelli hospital

Maria Maddalena Laterza[1], Bruno Chiurazzi[2] and Giacomo Carteni[2]
[1]Second University of Naples, Italy
[2]Cardarelli Hospital Italy, Italy

Background: Malnutrition was known to diminish treatment effects, decline in the functional status, increase mortality and lower life quality of oncology patients. This descriptive study aimed to evaluate the prevalence of malnutrition and its associating factors in cancer patients presenting for the first visit to Cardarelli Hospital.

Patients and Methods: 104 (34 female and 70 male) new cancer patients at Cardarelli Hospital, during July 2012 and October 2012 were enrolled. Data including sex, types and stages of cancer, previous treatment, serum albumin level, percentage of blood lymphocyte and were collected from the electronic medical record system. The nutritional status of each patients was assessed using the nutritional screening questionnaire mini nutritional assessment (MNA) consisting of a first screening part of data on body mass index, performance status, quantity of food intake, presence of comorbidity and a second part as global assessment which allows to obtain a score reflecting the patient nutritional status.

Results: Out of 104 new cancer patients, 32.7% had malnutrition, 56.7% had at risk of malnutrition and 10.5% were well nourished. The prevalence of malnutrition was higher at the patients with liver cancer, colon cancer, pancreatic and stomach cancer than others. Sex, types and stages of cancer were factors significantly associated with the nutritional status. Male and female cancer patients had malnutrition in 35.7% and 20.5 % respectively. Malnutrition in early, locally advanced and metastatic stage was 0%, 20.1% and 43.2% respectively. Low serum albumin level and low percentage of blood lymphocyte were others factors associated with malnutrition.

Conclusion: To date strategies for prevention of malnutrition and cachexia in oncology are still largely disregarded and scarcely implemented. The study confirms that the majority of new oncology patients presenting for the first visit to Cardarelli Hospital are at risk of malnutrition or malnourished. So a better screening and adequate nutrition intervention in oncology patients may reduce the incidence of malnutrition.

marilena_laterza@yahoo.it