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Chemotherapy and Radiotherapy: Pioneering Technique to Effectively Treat Mucositis

Feb. 14, 2013 — Mucositis is one of the most frequent side effects of chemotherapy and radiotherapy in cancer patients and currently cannot be treated. Investigators at the University of Granada have patented a melatonin gel that is 100% effective against this inflammatory reaction.

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Radiotherapy and Mucositis

It is estimated that 40% of patients who receive radiotherapy and up to 70% of bone marrow transplant patients will develop mucositis. In patients with cancer of the head and neck, 97% develop this condition to some degree, while 100% of those who receive staged radiotherapy over a prolonged period also suffer from mucositis.

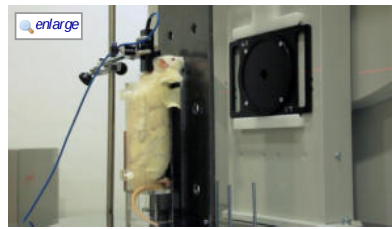
At the moment no effective treatment for mucositis exists, which is why the product developed at the University of Granada is of interest to the medical world and the pharmaceutical industry, given that it could greatly enhance the quality of life of cancer patients.

This patented compound is the fruit of more than twenty years of research into the properties of melatonin at the University of Granada, which has shown that mitochondrial damage is present in cases of mucositis. "Melatonin alleviates the inflammatory reaction and protects the mitochondria," says Germaine Escames Rosa, the principal author of the study, "and for this reason we think it could be useful for treating mucositis."

The success of the treatment developed at the University of Granada is due to the type of gel used in the

Scientists from the University of Granada have patented a compound made from melatonin that is effective in the treatment and prevention of mucositis, one of the most unpleasant side effects of chemotherapy and radiotherapy in cancer patients. It is an easily applied gel that "is believed to be the first product developed anywhere in the world to combat mucositis," according to investigators from the Biomedical Research Centre in Granada. There is currently no treatment for this problem because its pathophysiology is still not understood.

Mucositis is an inflammatory reaction that affects the mucous membranes throughout the digestive tract from the mouth to the anus, and is one of the principle adverse effects resulting from chemotherapy, radiotherapy and bone marrow transplants. This problem severely complicates the treatment of cancer as patients frequently have to be admitted to hospital, naso-gastric tubes and opiates must be used and, most seriously, radiotherapy treatment against the cancer is interrupted. On some occasions, the results can be fatal.



Rat subjected to irradiation (radiotherapy). (Credit: Image courtesy of University of Granada)

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pharmaceutical formulation, and the amount of melatonin used. "The oral application of this melatonin gel at a specific concentration, impregnates the mucous membranes and reverses the mitochondrial damage, preventing the appearance of mucositis in 100% of cases." Any other type of melatonin application, such as different concentrations, would not have the same effect.

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