Home / News

$144,000 Grant From ACS To Boost UTHSCSA Research On Oral Cancer Related Pain

AUGUST 12TH, 2015 ISAURA SANTOS 0 COMMENTS

Pain is the first and most significant symptom of oral cancer, with patients experiencing serious pain even if their tumors are quite small. In response to this, researcher Shivani Ruparel from the UT Health Science Center San Antonio was awarded a $144,000 grant from the American Cancer Society to assess the phenomenon of oral cancer pain. This grant is one of 100 dedicated to national research and training that represent over $45.6 million invested by the ACS this year alone.

“Pain is the very first and top symptom among 70 percent to 80 percent of oral cancer patients,” explained Dr. Ruparel, who is an assistant professor in the Department of Endodontics, which is part of the School of Dentistry. Thanks to her research project, Dr. Ruparel believes she can find an approach to block pain at the specific location of the tumor.

“Current treatments for oral cancer pain are not very effective and there are problems with side effects. What is worse is that oral cancer patients become tolerant to the dosage of the current pain medications very quickly, and therefore, require a lot more of it to achieve relief,” she added.

To improve treatments for oral cancer pain, Dr. Ruparel explained that “It is crucial to understand how oral cancer produces pain.” Her research focuses on studying cancer pain mechanisms in order to develop novel treatment options.

In previous research projects, Ruparel proved that oral cancer tumors free specific fat molecules that serve as messengers to communicate pain to the brain. After their release, they go through a pain-sensing channel in the surrounding nerves. After being received, the message is transmitted thanks to the nervous system sending messages to the brain.
Ruparel and her team will assess the production mechanism of these fat molecules that result from human oral cancer cells and will test new FDA-approved drugs that might inhibit such process so that pain is minimized.

“The goal is to develop analgesics that are equally or more effective than current medications but with much fewer side effects, to significantly improve the quality of life for oral cancer patients,” explained Ruparel. A rodent model will be used and, if successful, human trials will be prepared as well.

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Immunotherapy has gathered much attention recently as a new treatment strategy for cancer. The aim of these approaches is to treat the disease by inducing or enhancing immune responses against cancer cells.

In previous studies, Toll-like receptor 4 (TLR4), an important immune system signaling protein, has been found to promote breast cancer cell growth. Its gene is frequently mutated in a group of patients with poor outcomes and, as such, is a promising candidate for immune-based therapeutic agents and its blockade can be achieved by medications currently in development.