A review of the circadian rest-activity rhythm, a potential safety pharmacology a...

Health & Medicine, Cancer

The " circadian timing system" has been linked to the wellness and improvement of survival rate in cancer patients. Recent research shows how the circadian timing system is affected by chemotherapy in mice. The study tries to answer the main question: what is the relationship between the disruption of circadian rhythm and adverse events in individual cancer patients? The study also aims to quantify the treatment-induced CTS changes and to characterize the rhythm recovery dynamics of cancer patients.

The study samples include 49 patients who are candidate for saving chemotherapy regimens and medical treatment of their cancer disease. Specifically, the criteria include those who were diagnosed to have locally-advanced or metastatic solid cancer, at least 18 years old, had a physician rated performance status less than 3 and the expected life expectancy is at least 6 months. Other criteria include; actigraphy records taken at least 2 weeks after the end of the previous therapy and recovery from many acute clinical or hematological toxicities. The study design involves repeated measurements and longitudinal designs to determine CTS patterns of cancer patients who received a specific amount of body clock related chemotherapy dose. Patients were subjected to wrist actigraphy four times for in 3-4 consecutive days each before, during, immediately and after chemotherapy. Some of the parameters taken include the estimated activity within and out of bed, the " autocorrelation coefficient," amplitude, within and among daily variability.

Results revealed that a specific chronotherapy protocol may disrupt circadian in in-out bed activity (I