



Circadian Rhythm of Dihydrouracil/Uracil Ratios In Healthy Subjects With Normal And Inverted Sleep/Wake Cycle

Saif Eddine Gamaoun^{1,2*}, Arij Mani¹, Mhamed Ali Hamza² and Saad Saguem¹

1. Laboratory of Metabolic Biophysics, Professional and Applied Environmental Toxicology, Medicine faculty of Sousse, Mohamed Karoui Street, Sousse 4002, **TUNISIA**
2. Department of chemistry, sciences faculty of Monastir, Environment Street 5019, Monastir, **TUNISIA**

Email: saifeddineg@yahoo.fr

Accepted on 6th January 2015

ABSTRACT

Many researches are full of reflections on the significant risk of toxicity of cancer patients under 5-FU chemotherapy with DPD deficiency profile. One of them demonstrated that circadian rhythm of Dihydrouracil/Uracil plasmatic ratio in healthy subjects was observed suggesting that this parameter could be a good biomarker of DPD activity circadian rhythm. However, it is not yet known if subjects with inverted sleep wake cycle keep the same circadian rhythm of DPD activity as subjects with normal sleep pattern. For this purpose, we have collected and analyzed a sample of blood from 33 healthy patients all volunteers randomly selected from the Clinic Centre of CHU Farhat Hached Sousse, Tunisia. 9 of them have an inverted sleep /wake rhythm and the others have a normal sleep pattern. We have proceeded with the chromatographic analysis using HPLC system. Data acquisition and processing were accomplished automatically by computing integrator. More important and without forgetting that human being has a biological clock that can adapt to environmental changes and adjust the body according to the desired rate. For the first time, this study showed the existence of UH₂/U plasmatic ratio circadian rhythm in subjects with reversed sleep pattern compared to subjects with normal sleep. A controlled and adjusted time administration of 5-FU according to DPD circadian rhythm of subjects with inverted sleep pattern could be strongly useful for the optimization of 5-FU treatment and could help in the decrease of his side effects .

Keywords: 5-Fluorouracil, Dihydropyrimidine dehydrogenase, Dihydrouracil, Uracil, Circadian rhythm.
