2 CDA THERAPY AND P-53 ACTIVITY IN THE EPITHELIAL CELLS OF THE ORAL CAVITY MUCOSA

Barbara Jodłowska-Jędrych¹, Włodzimierz Matysiak¹, Krzysztof Misiukiewicz², Teresa Pszkit-Kamola³

¹Department of Histology and Embryology, Medical University of Lublin
Radziwiłłowska Street 11, 20-080 Lublin, Poland
²The Derald H. Ruttenberg Treatment Center, The Mount Sinai School of Medicine, 1190 Fifth Avenue, New York, USA
³NZOZ Rehabilitation, Żelechów, Lipowa Street 27
E-mail: b.jedrych@gmail.com

KEY WORDS: Cladribine, protein p53, epithelial cells

Cladribine (2-CDA), i.e. 2-chlorodeoxyadenosine is a popular analogue, purine nucleoside, which is widely used in the treatment of lymphatic system proliferative diseases, especially hairy cell leukemia (HCL).

The aim of the study was to evaluate p53 expression in the oral cavity epithelial cells of the animals which received 2-CdA in the dose used in leukemia therapy. The protein p53 is described as the guardian of the genome since it conserves the genetic stability of cells. It plays a key role in many important life processes, e.g. it controls cell division, induces apoptosis, activates DNA repair genes. The experiment was conducted on female white rats of Wistar strain. The rats were divided into one control and two experimental groups. The female rats from experimental groups (n=10) received SC 2 CdA in the dose of 0,1 mg/kg. b.m. in the period of 7 days, i.e. the model used in the treatment of leukemia. The female rats from the control group (C) were injected SC with physiological saline. Material for examinations was collected from 5 animals (D1) after 24 hrs, and from the remaining 5 rats (D2) 4 weeks after the last dose administration. Consent to conduct the experiment was obtained from the Local Bioethics Committee, Medical University of Lublin. The activity of p53 was evaluated by conducting an immunohistochemical reaction on paraffin sections using antibodies made by Sigma. The reaction intensity was analyzed by means of a Leica light microscope with a digital camera and the programme LAS EZ 2.0.0.

The analysis of the results of the reactions in the oral mucosa epithelial cells of female rats from group D1 enabled to observe positive, very weak immunohistochemical reaction in comparison with such reaction in group C. The expression of p53 in the oral mucosa epithelial cells of group D2 rats was more intensive compared to groups K and D1. Immunoprecipitates were visible especially in the cytoplasm of basal and spinous layer cells.

The study results may indicate the sensitivity of the examined cells to the applied chemotherapeutic agent, and the location of the positive immunohistochemical reaction may imply the loss of p53 suppressor function.