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The Effects of Benzo(A) Pyrene Doxorubicin and Paclitaxel on P170 Glycoprotein

Didem COŞAN Ayşe BAŞARAN Department of Medical Biology, Faculty of Medicine, Osmangazi University, Eskişehir - TURKEY Abstract : B(a)P is a mutagenic, carcinogenic and teratogenic substance. Paclitaxel and doxorubicin are antineoplastic drugs widely used in cancer treatment. The purpose of this study is to observe the effects of doxorubicin and paclitaxel on p170 glycoprotein in rat liver and kidney tissue after administration of B(a)P. As is well known, p170 glycoprotein is an indicator of drug resistance. We hypothesized that a combination of these antineoplastic drugs would cause lower p170 levels and thus would have a stronger effect than single drug administration. For confirmation, a combination of drugs was used to prevent the development of drug resistance. In this study, Sprague-Dawley rats were selected from a group 3-4 months of age. After administration of BaP and subsequently single or combined antineoplastic drugs, rats were sacrificed and their liver and kidney tissues were removed. Immunohistochemical analyses for p170 glycoproteins were performed on tissue samples. Excessive staining (4+) was noted in groups which received single drug therapy; the lowest staining (1+) was noted in groups which received combined drug therapy. Since the p170 level in the tissues increased when single antineoplastic drugs was administered, and it decreased when a combination of the two drugs (doxorubicin and paclitaxel) was given, it is our conclusion that a combined use of these drugs offers greater benefits in the treatment of carcinogenic diseases.

Key Words: benzo(a)pyrene, doxorubicin, paclitaxel, p170 glycoprotein, rat.

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