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Title of diploma thesis: Platinum cytostatics in the pharmacotherapy of cancer

Platinum cytostatics belong currently to the most widely used anticancer drugs. They are involved as a part of chemotherapy regimens in many indications. Cisplatin, as a first substance discovered in this group of cytostatics, was originally registered for the treatment of testicular cancer and ovarian cancer, but it is currently used in many other indications. The limiting factor associated with the administration of cisplatin is represented by adverse effects and the development of resistance in previously sensitive tumor cells. These factors stimulated further research in the field of platinum compounds in order to create a substance with similar mechanism of action, but better properties. To date, more than thirty agents entered clinical trials, but only two of them are used worldwide - carboplatin and oxaliplatin. The aim of this thesis is to create a publication that summarizes current knowledge on platinum cytostatics, which are used in the pharmacotherapy of cancer. This work focuses especially on the comparison between the various representatives under several scales (modes of action, mechanisms of resistance, pharmacokinetics, adverse effects and application in therapy). Understanding the relation between the structure of substances, cellular processes, mechanisms of resistance and therapeutic use of platinum drugs is important for the future research that may be focused on overcoming of resistance, minimization of adverse effects and increase of the efficiency of platinum compounds in pharmacotherapy of tumors.