

Individual Chemotherapy

12.1 Tumors react differently at chemotherapy

Cancerous cells of the same histological type (for instance breast tissue or lung tissue or ovarian tissue) react differently at specific chemotherapeutic agents. A chemotherapy, which brings about a complete remission of a malignancy in one patient, might be without any efficacy in another patient with the same kind of tumor. This patient will have to bear all the negative side effects of the chemotherapy, without receiving the benefits of a possible cure.

In case of a severe bacterial infection, it is a standard procedure, that one tests for which antibiotics the bacteria are sensitive and for which antibiotics there is a resistance.

Currently, it is possible to test whether a tumor is sensitive for a specific chemotherapeutic agent. In 80-95% of the cases, the so-called ATP-Chemosensitivity Test can document whether the tumor will respond to the chemotherapy or not (1-4). The ATP-Chemosensitivity test is therefore a very important laboratory test to predict which chemotherapeutic agent will have an effect and which chemotherapeutic agents will have no effect at all. In this way, a patient will not be exposed to an ineffective chemotherapy treatment, but still suffer from its side-effects.

Thus, the advantages of the ATP-Chemosensitivity test are:

- Optimizing the effects of the Chemotherapy;
- Avoiding ineffective chemotherapeutic agents and their side-effects;
- improving the cost-effectiveness of the therapy.

12.2 Test Procedure.

In a collaborating laboratory with the Cologne Model, tumor cells are tested for their sensitivity and resistance for several chemotherapeutic agents. Within a few days, the effects of the chemotherapeutic agents are known. An optimally effective chemotherapy can then be initiated within a week after the operation or biopsy.

Thus, in this way, each patient will receive an individualized and optimized chemotherapy.

(1) Cree IA, *et al*: Correlation of the clinical response to chemotherapy in breast cancer with ex vivo chemo sensitivity. *Anti-Drugs* (7): 630-635 (1996).

(2) Konecny G, *et al*: Correlation of Drug Response with the ATP Tumorsensitivity Assay of Primary FIGO Stage III ovarian cancer. *Gynecologic Oncology* (77): 258-263 (2000).

(3) Kurbacher CM, *et al*: Use of an *ex vivo* ATP luminescence assay to direct chemotherapy for recurrent ovarian cancer. *Anti-Cancer Drugs* (9): 51-57 (1998).

(4) Kurbacher CM, *et al*: Chemosensitivitätstestung beim Mammakarzinom. In: Untch *et al*: Diagnostik und Therapie des Mammakarzinoms. Zuckschwerdtverlag, München (2000).

