

# The importance of tumor markers in the treatment of cancer

## Tumor markers

Tumor markers are various substances, most often proteins, that are produced in our body in response to tumor growth or by the tumor tissue itself.

- They have the most important application in therapy and in monitoring the course of the disease.
- In most cases, it is sufficient to monitor the patient during treatment with 1-2 tumor markers, the choice of which depends on the type and location of the tumor.

## Marker determination before treatment

- It is always necessary.
- By comparing the levels of markers before and after surgery, it is possible to obtain information about the scope of surgery and its effectiveness.

## Marker determination during therapy

- An increase of more than 25% of the original value is assessed as **progression**.
- A decrease of more than 50% of the original value as a **partial remission**.
- Deviations from the expected biological half-life are of prognostic significance.
- The rate of tumor growth can be estimated by the time it takes for the concentration of the tumor marker to double (doubling time).

## Marker determination after treatment

- The negativity of the levels reflects the success of the treatment – the biological half-life of the marker must be taken into account, which for individual markers ranges from hours (hCG,  $\beta$ 2-microglobulin) to days (AFP, CEA).
- An increase in the concentration of a tumor marker immediately after treatment may be a sign of the breakdown of tumor cells due to effective therapy (the so-called **lysis phenomenon**).
- For these reasons, follow-up is usually taken 3-4 weeks after the start of treatment.

## Marker determination after treatment

- An increase in the concentration of a tumor marker in three consecutive samples in a patient without therapy, even if the results are within the reference range, should be considered a recurrence, resp. disease progression.

## Importance of monitoring tumor marker levels

Regular determination of tumor marker levels is of great importance in determining the effectiveness of cytostatic treatment. By comparing the values of tumor markers examined before the administration of individual cycles of cytostatics, it can capture the first manifestations of treatment ineffectiveness in time. It is very important to emphasize that when monitoring the effectiveness of cytostatic treatment, it is necessary to place more emphasis on the dynamics of changes than on the absolute level of values. Therefore, it is necessary to monitor changes in the levels of the relevant markers even below the reference value. Tumor markers may indicate recurrence several months earlier than imaging techniques. The clinical value of a tumor marker depends on the prevalence of the disease that accompanies it in a given population and on the sensitivity and specificity of that marker.

## References

### Related articles

- Tumor markers

### References

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