EFFECTIVE CANCER TREATMENT BY MULTIDISCIPLINARY TEAMS

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Neoplasm as a social problem

Neoplastic diseases are second, in terms of frequency, cause of death. There are 140 thousand new neoplasm cases and 90 thousand of deaths due to cancer recorded in Poland annually (1). Over 400 thousand people suffer from cancer in Poland and often they remain socially active. The natural neoplasm development is usually unfavourable and active oncological treatment is necessary, with the primary method being surgery, although collaboration of many specialists is increasingly more often required. The developments in surgical techniques influence the improvement in treatment results, yet still the majority of patients reporting to a physician suffer from advanced neoplastic process requiring combination therapy. Combination therapy leads to an improvement in treatment results in approx. 1/3 of patients with neoplasm, most commonly a locally/regionally advanced one. In Poland, the above therapy is used in only half of the patients having indications for such treatment (2). For years, the role of multidisciplinary teams (MTs), the diagnostic and therapeutic activity of which clearly improves the treatment results in neoplasms, has been growing (3, 4).

Main pillars of MT operation

The key to optimum neoplasm treatment is proper diagnostics. The basis of treatment planning, apart from history-taking and physical examination, are the results diagnostic imaging and microscopic examination. The leading principle of modern oncology is no treatment without pathomorphological diagnosis. The pathologist plays a crucial role in differential diagnostics and cancer confirmation. They examine tissue samples collected from the tumour to confirm or rule out cancer diagnosis. They are involved in the diagnostics and in the assessment of treatment efficacy (5). In extremely rare cases, treatment may be initiated without biopsy performance – only when the radiological picture and disease course enable the determination of neoplasm type with high probability, and the collection of specimen for histopathological examination is hindered. The postoperative pathological report specifies the level of lymphatic system involvement (lymph node index), node capsule infiltration, and presence of micro- and macrometastases. It is the basis for systemic adjuvant treatment.

Microscopic examination evaluates the following:
1) histological type of cancer,
2) cancer size,
3) malignancy degree,
4) type of infiltration (surrounding tissues and organs, blood vessels, nerve trunks),
5) localisation in relation to specific anatomic structures,
6) surgical margins,
7) biological features, mitotic index (melanoma, breast cancer), receptor status (breast cancer),
8) presence of markers being targets of novel therapies.

The diagnosis depends to a large extent on correct collection of tissue sample, usually performed by a surgeon. Neoplasms proliferating in the abdominal cavity are sometimes difficult to access by biopsy and the first procedure is aimed at diagnosis verification and tumour excision. In some cases, it is advisable to perform a perioperative examination, in order to adjust the extent of resection or even abandon a (risky) attempt at resection extension when the tumour may be treated successfully with irradiation and/or chemotherapy.

In clinical practice, the decision on treatment is based on correct weighting of the following elements:
1) natural course of the disease,
2) prognosis in terms of recovery or patient’s life extension,
3) possibility and efficacy of conservative treatment
   – chemotherapy,
   – radiation therapy,
   – immunotherapy,
   – hormonal therapy,
4) possibility and efficacy of surgical procedure
   – possibility of achieving surgical radicalness,
   – risk of complications,
   – functional effects of surgery,
   – aesthetic effects of surgery.

The evaluation of possibility of conservative treatment lies with the oncologist and is based on the results of histopathological examination, neoplasm advancement and patient’s general condition. Knowledge of biopathology of neoplasms enables the assessment of risk of local recurrence, distant metastases (prognosis) and adjustment of therapeutic approach. Also the knowledge on the potential and limitations of radiation therapy and chemotherapy has impact on the ability to temporarily withdraw from surgical treatment in favour of preoperative treatment.

Surgery is the oldest and basic treatment method in neoplasms. The first surgical procedures were performed already in antiquity, but only when the tumour produced clear symptoms and hindered sufferer’s life. In the 20th century, surgical treatment started to be used in the early stages of cancer, which markedly increased the chances of recovery (6). In the 1970s, Prof. A. Kulakowski presented The Ten Commandments of Oncological Surgeon, in which he outlined how the surgeon should proceed with a patient to achieve therapeutic success. The decision on treatment, combination of therapeutic methods and planning of their application in time should be made in a specialist forum, and the patient should be treated according to a programme carefully selected for them, taking into consideration the potential therapeutic benefits and the risk of complications (7).

Currently, the surgical and oncological treatment of cancer constitutes a difficult organisational and logistic challenge.

Radical tumour excision with a satisfactory margin of healthy tissues, enabling the abandonment of adjuvant treatment, is possible in locally advanced neoplasms. The majority of patients with locally/regionally advanced neoplasm require combination treatment which should be planned properly. The planning of pre- or postoperative radiation therapy has influence on the selection of surgical treatment or reconstruction in the future. The treatment plan, consulted with the MT members, allows to avoid unexpected difficulties and to select a treatment that is optimum for the patient. The therapeutic approach should be of interdisciplinary nature and should also take into account the coexisting diseases and metabolic disorders.

Multidisciplinary teams – objectives and principles of operation

The planning of successive treatment stages should be prepared by a team of specialists encompassing surgeons, radiation therapists, chemotherapists, radiologists, pathologists, physiotherapists, psychologists, clinical geneticists and oncological nurses, as well as other specialists as needed, e.g. nuclear medicine specialists, pulmonologists or gastroenterologists (organ specificity) (8). The treatment plan prepared by the team of specialists with different experience and specialisation, presented comprehensibly to the patient, provides the highest probability of selecting the optimum treatment. An interdisciplinary team of physicians jointly executing the treatment
process contributes to the achievement of a better therapeutic result (4, 9, 10). Treatment by such a team produces better results than consultations with specialists scattered among many institutions (11). The main indication of treatment efficacy, and thus also MT effectiveness, is patient survival, defined as the percentage of patients surviving for 5 years (or longer, depending on the prognosis) from treatment initiation. Of importance is also the time to disease recurrence. In the team, it is usually the oncological surgeon who is the central figure. Usually, it is them to make the first direct contact with the patient and to act as the liaison between the MT and the patient. It is also them who decide whether and when to perform surgery.

Main features of MT are as follows:
1) common goal,
2) individualised action,
3) joint determination of the scope of therapeutic actions,
4) division of duties,
5) team operations based on partnership,
6) oncological surgeon usually acts as the team coordinator.

The time and place of MT meetings should be fixed and precisely defined. The aim of the therapeutic team meeting is the determination of full-scope data on the patient, their health problems, as well as the selection of therapeutic approach and evaluation of its efficacy.

Main stages of MT work:

1. exchange of full-scope information on the patient
2. presentation of therapeutic options
3. obtaining of patient’s consent to the suggested treatment
4. determination of individual treatment plan with the patient

The discussed cases should be presented orally with the use of projector. The MT decision on the diagnosis and suggested treatment should be included in the meeting report. Such team work organisation offers numerous benefits for the patients and for all its members (8). The meetings also serve organisational, therapeutic and educational purposes, particularly for young doctors (12, 13). Such meetings also offer an opportunity to discuss the problems with unit operations and teamwork (3).

Exchange of information

The exchange of full-scope information on the patient covers the determination of data on disease course, previous treatment and its results, previous examinations, coexisting diseases, and the determination of therapeutic options under the MT. The experience of team members enables full identification of patient’s health problems and their discussion. The extent of knowledge of individual team members on the patient is different, depending on the scope of competences and nature of performed work. At this stage, there usually occurs exchange of information acquired during history-taking from the patient or their family, exchange of observations that are of importance for diagnostics and potential therapeutic approach. Each team member is a source of information on the patient and their clinical status. Correct diagnosis is the first stage in the implementation of proper individualised treatment. This stage of team work is based mainly on the work of surgeon, radiologist and pathologist (14).

Presentation of therapeutic options

During the meeting, there are presented all therapeutic options and the patient decides which one to use. This element of MT operations is an element guaranteed by patient’s right to informed participation in the therapeutic process (15). The patient should be presented with alternative therapeutic options and the current knowledge on the natural disease course. Often, sequelae of oncological treatment cause limitations in everyday functioning. Physical therapy and reconstruction procedures are required. This is why it is necessary for all the patients to be fully informed about the treatment, the extent of surgical procedure, sequelae and potential complications (16). Informing of patients about the disease, prognosis and therapeutic options
should be performed by persons prepared to do this, in an appropriate atmosphere, sometimes in the presence of a person close to the patient (17).

Obtaining of patient’s consent to the suggested treatment

Sometimes, the patient resigns from the option of surgical treatment, yet it should be borne in mind that the decision on treatment is theirs. Patients should be given time to make the decision on the presented treatment plan, and the opportunity to consult other physicians. Consent must be wilful, i.e. preceded with the provision to the patient of thorough information on the health status and therapeutic options (15, 16). In the case of surgery and the use of other treatment methods or interventional diagnostics posing risk, the patient should always grant their written consent (18).

Determination of individual treatment plan

Upon the approval of treatment method, the treatment plan is determined. The treatment plan, from diagnosis to the achievement of planned results, is determined for each patient based on the collected data. The expected tumour growth dynamics, sensitivity to irradiation and cytostatics, and chances of recovery are decisive in the selection of treatment methods and the order of their application. It should be borne in mind that consultation with other specialists in each uncertain case is justified and required. Delays in undertaking the surgical treatment should be avoided in patients in whom surgery will be necessary at a later stage, in poorer anatomical conditions and with higher risk.

Essential elements of the therapeutic plan are follow up and catamnensis starting from the disease diagnosis and following hospitalisation, particularly in the first 2-3 years after treatment completion, since local recurrence and distant metastases usually occur in that period (19). Each patient has a set individual check-up visit schedule, including the frequency and type of examinations. In some patients, the above follow up contributes to an improvement in treatment results (early diagnosis of disease recurrence).

Main problems in treatment planning

Problems in treatment planning are observed in patients with cancer recurrence, previously treated with (neo)adjuvant chemotherapy and/or radiation therapy. Repeat irradiation and/or chemotherapy are possible in some patients only and are associated with high risk of complications. In such cases, potential surgery must be planned as a radical procedure, since adjuvant treatment efficacy cannot be counted on any more. Usually, the results of subsequent surgeries are poorer than those of primary treatment. Postoperative and radiation lesions hinder the evaluation of recurrence advancement, and in some patients resection radicalness cannot be achieved, although it has been deemed possible by the team earlier.

The patient as the subject of MT operations

The patient should be the subject of medical activities, with real influence on the course of treatment. Active participation of the patient in a MT meeting should depend on their will. In the case of participation in the meeting, they should be a partner in the conversation and have a chance to co-decide on the treatment process. Patients who do not want to speak up in the presence of many people should have the option of selecting a MT member they trust and contacting them only. Mutual trust is the basic principle of collaboration, where the patient is the most important, main subject of activities of the entire therapeutic team (20). During the meeting, the patient should have the opportunity to express themselves freely and to ask questions. They obtain information important for them, concerning their health, owing to which they develop the image of their disease, which influences their mental sphere, behaviour and attitude towards treatment (21).

The patient and their spiritual needs

Medicine is a scientific discipline, it focuses primarily on the physical world and does not
provide answers to questions of existential nature, e.g. the meaning of suffering, the meaning of life, or life after death. The above questions are explained by theology and/or philosophy. This is why, the patient – if they wish so – has a right to pastoral or psychological aid as one of the elements of MT work (22). The presence of a chaplain or psychologist and the possibility to talk to them often have a therapeutic effect.

Model example – multidisciplinary teams dealing with breast cancer

An example of MT work aimed at improving the quality of treatment may be oncological units specialised in breast cancer treatment (also known as breast units). In 1998, at the European Breast Cancer Conference in Florence, there was adopted the so-called “Florence Statement” on the appointment of specialised units dealing solely with treatment of patients with breast cancer (23). Following that, the European Parliament has passed a resolution pursuant to which the member states are to establish multidisciplinary breast cancer treatment centres by 2016 (24). The provision to patients of full-scope professional medical care at all stages of proceedings (from diagnostics, through treatment, to follow up) is decisive for the therapeutic results. The principles of breast unit operations are regulated by strictly specified standards, e.g. it is known how long the diagnostic process should take, and the principles of patient follow up and failure analysis have been specified. Centres treating patients in line with the above standards should operate in each provincial capital, there should be one such centre per 300 thousand inhabitants, they should treat over 150 breast cancer patients annually, and a surgeon should perform a procedure in at least 50 cases annually.

CONCLUSIONS

1. Treatment of malignant neoplasms is difficult and should be a domain of multidisciplinary therapeutic teams, which guarantees better therapeutic results.
2. Modern oncological treatment requires the use of various methods, therefore, treatment at a sufficiently high level may only be provided by centres having modern equipment and employing many specialists.
3. The oncological treatment success is to a large extent dependent on the treatment strategy, which should be determined for each patient before its initiation.

REFERENCES


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