ISSN: 2755-0133

Journal of Medical & Clinical Nursing

SCIENTIFIC
Research and Community

Reserch Article

Open Access

Healthcare for Oncological Patient

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SUMMARY

Despite the constant advancement of medicine in the fields of detection, diagnostic options, and modern forms of treatment, the incidence and mortality of malignancies is in an upward trajectory. The fact of the existence of a malignant disease in the patient results in shock, disbelief and fear, and fright of pain, suffering, and possible death. There is frequent anger and regret about interrupting the usual lifestyle and disrupting life plans. These are normal reactions and with the support of the family and the environment, affected person are successfully dealing with these difficulties.

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Received: November 27, 2020; **Accepted:** December 05, 2020; **Published:** December 29, 2020

Keywords: Patient, Cancer, Treatment

Introduction

The ultimate diagnosis of any benign or malignant tumour will depend upon a pathologist's examination of a specimen of tissue [1]. This can be a surface scraping of tissue, a small sample of cells taken by aspiration with a syringe, a small core of tissue taken with a small core cutting instrument, a small sample of representative tissue (incision biopsy) taken by a surgeon using a scalpel or other cutting instrument or even the whole tumour mass (excision biopsy) taken by a surgeon. The ultimate diagnosis is sometimes not confirmed until after death of the patient with specimens taken at autopsy.

No matter how the tissue sample is taken, the pathologist will, if possible, report on the macroscopic as well as the microscopic features of the tissue and its cells. Before the pathologist can report on the microscopic features of the tissue and cells in it, the tissue must be prepared in a solid block, usually a wax block, so that fine sections can be cut. The prepared tissue will be stained with appropriate stains to best display special features. Unless immediate cell smears or frozen section specimens are prepared, most tissue preparations and staining procedures require at least 24 h and usually 2–3 days.

The pathologist will be able to report not only on the type of tissue but whether it is normal or abnormal tissue and if abnormal, whether it shows features of a tumour – benign or malignant.

Cancer

Cancer is a group of diseases in which cells have developed the ability to invade into surrounding tissues and potentially metastasize to distant sites [2]. There are many different types of cancer, but they all occur as a consequence of acquired mistakes in the DNA, including epigenetic changes. The DNA provides the master plan for all organisms in which four nucleotide bases (guanine, cytosine, adenine, and thymine) occur in specific arrangements and spell out the exact instructions required to create a particular organism with its own unique traits. The coding contained in the DNA is responsible for the formation and function of the complete spectrum of different cells and organs, as well as the biologic changes that occur as we age. The changes in the DNA that lead to cancer alter critical cellular processes that govern cell behavior, leading to cells that can invade and move to places where they do not belong. The different types of cancer reflect the different types of cells that undergo changes in their programming as a consequence of the alterations in the DNA.

There are many different types of errors that can occur when DNA is replicated, and when they are not corrected, the changes are usually detrimental to the cell, but occasionally they give a growth advantage. While nearly all cells have the same DNA, different types of cells use distinct portions of the DNA for defining cellular characteristics and behavior, and making proteins that address each cell's specific needs. Access to distinct portions of the DNA code are regulated through a process called epigenetics, in which the ability to read the DNA code is changed without changing the DNA sequence, and epigenetic changes can also contribute to cancer. Most cancers also contain alterations in the DNA sequence. Simple substitutions of nucleotides can lead to mutations that alter proteins or change regulatory regions in the DNA. Sometimes changes involve large portions of DNA, including duplications, deletions, inversions, or movement of DNA to distant regions (called translocations); these changes often affect hundreds of genes simultaneously. Changes in DNA that are detrimental to the cells usually are eliminated, whereas changes that give cells a growth and survival advantage can rapidly be propagated and set the stage for the development of cancer.

Management

Best management of cancer will depend on many factors including patient factors (age, state of health, family, social and emotional considerations), hospitals or other treatment facilities with or without specialised nursing care and allied health professionals, as well as particular factors of the cancer itself [1].

The cancer factors include three special pathology considerations: the type, grading and staging of the cancer. These will be made with information provided by both the pathologist and the cancer treatment team.

The treatment team depends on the pathologist for confirmation of the presence of cancer, the cancer type and other features of the cancer. The most common malignancies are carcinomas from cells of epithelial surface or glandular type and usually retaining some of the features of these types of cells.

Other malignancies include those of connective-tissue cell origin (sarcomas), germ-cell origin (testicular cancers and some ovarian cancers) and bloodforming cell origin (leukaemias and lymphomas). Malignancies that do not readily fit into any of the preceding group types include gliomas of brain and myeloma, an uncommon tumour that develops in bone but is not of bone cells. Myeloma or multiple myeloma is a malignancy of plasmacytes in bone.

Cancer grading gives an indication of the likely aggressiveness of the cancer. In general, highly differentiated tumour cells that closely resemble their cells of origin may be either benign or may be very low-grade cancers with little tendency to grow rapidly or to metastasise early. Whereas poorly differentiated, anaplastic cancer cells that have often lost all special features of their tissue of origin are much more likely to behave in an aggressive fashion and invade nearby tissues as well as to metastasise to other sites.

Tumour staging can be based on clinical assessment compiled after all clinical information is known. This is clinical staging. Alternatively staging may be based on the pathologist's examination of tissue biopsies. This is pathological staging. Clinical staging is more readily available to the examining doctor but ultimate decisions are better based on pathological staging which should be more accurate.

Detecting

A large range of tests is now available to help detect cancer [1]. Some of the most useful of these became available only during the last decade or two of the twentieth century. These range from screening tests, that may help detect the possibility of cancer in people who are at risk but without any symptoms, to organ-imaging tests when symptoms are being investigated. Helpful tests include X-rays, CT scans, ultrasound scans, isotope scans, MRI scans and PET scans. Each of these may reveal the presence, the site and likely dimensions of a deep-seated tumour. Endoscopic tests that use flexible mirrored endoscopic tubes allow the operator to look at, photograph and even biopsy lesions in the alimentary tract, thorax, peritoneal cavity or in other body cavities. A number of blood and serum tests may reveal evidence of reactions to a tumour somewhere in the body. The ultimate investigation, however, is a biopsy because microscopic examination of biopsied material can very often tell the type of malignant cells and the organ or tissue from which they originally developed, as well as the degree of anaplasia or potential aggressiveness of the cancer.

Pain

Surveys indicate that pain is experienced by 30–60% of cancer patients during active therapy and more than two-thirds of those with advanced disease [3]. This has been corroborated in a series of recent studies which identified a pain prevalence of 28% among patients with newly diagnosed cancer, 50–70% among patients receiving active anticancer therapy, and 64–80% among patients with far advanced disease. Unrelieved pain is incapacitating. It precludes a satisfying quality of life. It interferes with physical functioning and social interaction. It is strongly associated with heightened psychological distress. Persistent pain interferes with the ability to eat, sleep, think, interact with others, and is correlated with fatigue in cancer patients.

The relationship between pain and psychological well-being is complex and reciprocal. Mood disturbance and beliefs about the meaning of pain in relation to illness can exacerbate perceived pain intensity. The presence of pain is a major determinant of function and mood. The affective dimension of pain includes sensations of unpleasantness and emotions associated with future implications. The affective component of the pain experience is related to a central network of brain structures, including spinal pathways to limbic structures and medial thalamic nuclei, spinal pathways to somatosensory thalamic, and a cortico-limbic pathway to cortical areas. This cortico-limbic pathway integrates nociceptive input with contextual information and memory to provide cognitive mediation of pain affect.

The presence of pain can provoke or exacerbate existential distress, disturb normal processes of coping and adjustment, and augment a sense of vulnerability, contributing to a preoccupation with the potential for catastrophic outcomes.

The high prevalence of acute and chronic pain among cancer patients and the profound psychological and physical burdens engendered by this symptom oblige all treating clinicians to be skilled in pain management. Relief of pain in cancer patients is an ethical imperative. It is incumbent on clinicians to maximize the knowledge, skill, and diligence needed to attend to this task.

Cancer pain syndromes are defined by the association of particular pain characteristics and physical signs with specific consequences of the underlying disease or its treatment. Syndromes are associated with distinct etiologies and pathophysiologies, and have important prognostic and therapeutic implications. Pain syndromes associated with cancer can be either acute or chronic. Whereas acute pains experienced by cancer patients are usually related to diagnostic and therapeutic interventions, chronic pains are most commonly caused by direct tumor effects. Adverse consequences of cancer therapy, including surgery, chemotherapy, and radiation therapy, account for 15–25% of chronic cancer pain problems. A small proportion of the chronic pains experienced by cancer patients are caused by pathology unrelated to either the cancer or the cancer therapy.

Treatment

Although cancer is a frightening word, it is a fact that in modern developed societies most cancers are cured [1]. The possibility of cure of a cancer depends upon a number of factors, especially the tissue from which it has grown and the type of cancer cells in it, the size and position of the tumour in the body, the degree of abnormality of the individual cancer cells, the structures into which the cancer may have grown and the presence and site of any metastatic spread. The age and general health of the patient are also significant. The patient's natural defence reactions may be highly significant although, as yet, not clearly understood and not yet able to be measured with any confidence.

Many of the most significant factors will depend upon how quickly the cancer is detected and treated. A small cancer detected early and before it has spread or involved other tissues may be eminently curable whereas the same cancer neglected, perhaps for some months, until it has enlarged and spread to other sites, may be quite incurable.

Surgery was thus the first effective form of cancer treatment. It is now used to establish a diagnosis, to effect a cure or in some advanced or incurable cases, to give good palliation and relief of symptoms. When possible the surgeon's primary objective is to excise the cancer in its entirety, together with all adjacent tissues into which cancer cells may have spread. For many cancers, especially for early skin cancers and small cancers on lips or in the mouth, surgery offers a relatively simple, straightforward, quick and effective method of eradicating cancers. A complete cure can be expected without any residual problem. For more advanced cancers that have spread to or are likely to have spread into draining lymph nodes, the surgeon removes not only the primary cancer but all the draining lymph nodes likely to be involved. The primary cancer and lymph nodes are best removed in continuity in one block of tissue where this is feasible. This is called a " block dissection" and a high incidence of long-term cure can also be expected. If a great deal of tissue has to be removed, the surgical team may need to do some form of plastic or reconstructive surgical procedure to leave as little defect or deformity as possible. The surgical removal of a tumour is also the most effective cure for the cancer associated weight loss (cancer cachexia), as the cellular source of the abnormal metabolism driving the weight loss is removed.

Prognosis

One meaning of prognosis is that it is a physician's estimate of the future course of a patient's disease and especially of their survival [4]. Prognoses are important to physicians and patients in all phases of cancer care, and they inform both medical and nonmedical decisions. In early-stage disease, prognoses help physicians and patients to weigh the likely benefit of given therapies (e.g., adjuvant chemotherapy). In advanced stage disease, prognoses may be of additional importance, as they may herald a switch from primarily curative or life-prolonging care to primarily palliative care and in so doing set off a cascade of both clinical and personal decisions. Despite its importance and ubiquity, reliable prognostication in advanced disease is not straightforward. Numerous studies have revealed substantial optimistic bias in physicians' prognoses for their terminally ill cancer patients. It seems likely that this optimistic bias may contribute to the short survivals observed in patients referred for hospice care and to other types of decisions doctors and patients make near the end of life. Research that is focused on improving physicians' prognostic abilities is therefore of critical importance to palliative care.

Although prognosis is a central element of a significant amount of oncologic research, formal and explicit prognostication is not often required in the clinical care of cancer patients. Nevertheless, there are two instances in the care of advanced cancer patients where physicians are asked explicitly to prognosticate: (a) when they are enrolling patients on experimental chemotherapy protocols, and (b) when they are referring patients for hospice care. Each therapy has discrete and opposite eligibility requirements pertaining to survival—that is, to be considered for enrollment on phase I experimental chemotherapy protocols, patients typically must have an estimated survival of longer than 3 months. To be considered for enrollment for hospice care under the Medicare Hospice Benefit, patients must have an estimated survival of less than 6 months. Because of these formal requirements, physicians' ability to determine fine gradations in survival among patients in their last 6 months of life may mean the difference between aggressive and palliative care.

Healthcare

The presence of cancer in the body sooner or later will have a profound effect on the sufferer's general state of health [1]. Anorexia (loss of appetite), weight loss, anaemia, lassitude, and general malaise and debility are common general features and specific problems will develop according to the site of the cancer and the tissues or organs involved. The ability of the body's natural defence mechanisms to control cancer is affected by the patient's general state of health, as will the patient's mental and emotional state and ability to tolerate the various forms of treatment.

For these reasons, it is important that special attention should be paid to the patient's general health and well-being. The diet should be nutritious yet tempting and interesting. Adequate vitamins must be provided either in the food or in vitamin supplements and omega oils should be part of the treatment of cachexia. Any anaemia should be appropriately treated and there should be provision for adequate rest and gentle healthy exercise. There must be adequate provision for pain relief. Emotional support from family, friends and the treatment team including friendly concern and support of a good family doctor make a big difference in the prospects of the patient living comfortably and making achievable progress.

Palliative Care

Although many advances have occurred in the prevention and treatment of cancer, death from this condition remains a common occurrence [5]. The end-of-life experience associated with cancer varies widely and may be influenced by the type and extent of the disease and by the palliative interventions provided. Physical and emotional symptoms become more common as cancer progresses, and although there is evidence suggesting that they are often underused, many effective palliative interventions do exist to address these symptoms. Knowledge of the epidemiology of cancer-related mortality, symptoms, and end-of-life concerns is essential for physicians who care for patients and patients' families as they experience the advanced phase of illness. Such knowledge is necessary for several reasons: to facilitate optimal delivery of care and symptom management; to contribute to an informed public discussion about end-of-life care for cancer patients; to promote development of research initiatives targeted toward improving quality of life in the latter stages of illness; and to develop standards, guidelines, and treatment strategies for end-of-life care.

Although many studies have described the experience of patients during the advanced stages of cancer, a large number of questions remain unanswered about the physical and emotional experience of these individuals. There is a need to expand the epidemiological knowledge base particularly as it relates to specific cancers, sites of care, and aspects of the symptom experience. Information is also required about how patients are cared for and by whom; whether patients' goals for end-of-life care are being met; and which setting—home, hospital, or hospice—is most likely to meet these goals for a variety of subpopulations with differing problems and symptoms. Access to care, physicians' knowledge of palliative care, patient-physician communication, and patient-family-physician communication must be further explored. Special consideration also needs to be given to unique populations, including the pediatric, the elderly, and the mentally handicapped. Much of the distress that may occur at the end of life is responsive to palliative interventions, but a broader understanding of the many aspects of the end-of-life experience is needed for the further development of health care strategies and standards for the care of the dying. Strategies and standards must be further developed so that optimal care can be provided for all patients and families at this most difficult time.

Palliative care for advanced cancer patients has to be focused strictly on the control of symptoms and the psychological support of patients and their families [6]. Patients should be protected from non-evidence-based overtreatment, which often reduces their quality of life. However, the decision to cure or to care can be difficult. Moreover, many patients want to continue to fight and to feel they are being 'treated'. The daily practice of palliative care should be tailored to the patient's needs, which we have to understand by careful exploration. Health-care professionals should encourage opportunities for carers to discuss their views of the ongoing needs of patients with advanced cancer.

Many palliative care patients prefer home care, and a majority of terminal patients want to die at home. For this reason, home care needs the greatest attention. However, the demographic situation makes it increasingly difficult to find family members who are willing to be caregivers at home. Therefore, parallel hospice organizations and palliative care units also deserve strong support. Only a well-organized network of specialized oncology, home-care and hospices/palliative care units can guarantee the fundamental human right of advanced cancer patients to live and die with dignity. Medical oncology should be the driver in establishing this network for palliative oncology.

Conclusion

In view of the importance and number of cancer patients, preventative measures are important in the form of early detection of the disease, and to enable patients at terminal stages and their families through adequate oncological care to provide a better quality of life, both through the reduction of physical symptoms and through physical, mental and social difficulties. The entire community should be involved in the care of the oncology patient and with the holistic approach to every patient is need to be enabled the right to a life worthy of a man.

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