

# Palliative Radiotherapy for Terminally-Ill Cancer Patients: Lack of Usefulness or Lack of Knowledge?

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The most important aim of palliative care is to provide adequate palliation for cancer patients with end-stage disease whose life-expectancy is about six months or less. Beyond pharmacological interventions, radiotherapy represents a valuable therapeutic option in this setting.

Radiotherapy provides significant palliative relief for several symptoms as pain, dyspnoea and bleeding.

Most radiation oncology departments report that about 50% of referrals are sent for the palliative treatment of cancer [1].

Even if, in about 30% of cases, palliative radiotherapy is administered for symptomatic bone metastases, the majority of patients are treated for other symptoms [2].

External-beam radiotherapy is able to decrease hemoptysis due to lung cancer and, in several studies, up to 80% of patients showed a satisfactory control of hemoptysis: in this setting, a single dose of 10 Gy showed to be effective as multiple fractions.

Furthermore, radiotherapy was also evaluated for bleeding caused by neoplastic lesions of the vagina, skin, rectum and bladder [3-5].

Standard fractionation External-Beam Radiotherapy (EBRT) is generally administered with fractions of 1,8–2,0 Gy delivered 5 days per week for 5-8 weeks. Splitting the total dose into multiple fractions mainly depends on the risk of late complications.

Cancer patients with advanced disease frequently require symptomatic relief and have generally short life-expectancy, physical discomfort related to transportation and emotional distress due to prolonged treatments.

Conversely, hypofractionated radiotherapy results in a smaller number of treatments than standard EBRT. Consequentially, each daily fraction is larger and commonly ranges between 3 Gy and 8 Gy: such a fractionation should offer an earlier efficacy. In general, palliative relief has its onset in 1-2 weeks and reaches the maximum benefit within 1 month.

In contrast to standard fractionation, single-fraction radiotherapy or hypofractionated regimens present potentially increased risk of late toxic effects: however, due to their limited life-expectancy, the vast majority of patients will never face these toxicities.

According to literature data it can be stated that hypofractionated radiotherapy has been administered in advanced cancer patients with evidence for similar effectiveness to standard fractionation and it can provide an earlier symptomatic relief with a lower risk of treatment interruption. Moreover, patients with advanced disease commonly present physical limitations to make multiple trips for visits, treatment planning and treatment application: in this therapeutic setting, hypofractionated radiotherapy could improve quality of life of patients and their relatives [6].

In palliative care, short-term radiation treatments seem to be more appropriate: as described above, the majority of patients have very limited life span and, therefore, they could benefit from symptomatic

improvement offered by hypofractionated radiotherapy without facing significant risks in terms of long-term toxicity.

Unfortunately, radiotherapy has a financial cost that commonly exceeds the daily rate of hospice care: although, in a period of financial crisis, this aspect seems to have a greater importance than in the recent past, it is necessary, however, to support such costs through a proper rationalization of economic resources.

Currently, we have data emerged from several clinical trials that have defined and confirmed the substantial clinical efficacy of short-course palliative radiotherapy in cancer patients with advanced disease but few data exist about the role and the efficacy of palliative radiotherapy for cancer patients who have been admitted to hospice [7].

Despite the potential benefit related to palliative radiotherapy, only an exiguous proportion of hospice patients receive radiotherapy.

Although financial issues seems to represent the primary barrier, in end-stage cancer patients we have to consider even more several other factors: length of radiotherapy treatment, transportation, extremely poor clinical status of many patients and educational deficiencies existing among oncologists, radiation oncologists and palliativists.

In a survey on use of palliative radiotherapy in hospice care about 50% of hospice professionals did not consider themselves sufficiently trained in providing correct indications for palliative radiotherapy and, furthermore, nearly half of palliativists had concerns about the expertise of radiation oncologists in making treatment decisions for terminally-ill cancer patients [8].

In conclusion, several barriers negatively influence the use of palliative radiotherapy in cancer patients admitted in hospice: poor performance status of many patients, transportation difficulties, financial costs, radiotherapy-related toxicity. Despite these barriers, whether physicians involved in palliative care (radiotherapists, oncologists and hospice professionals) would improve their collaboration and their cultural exchanges, surely this could lead to a more extended and careful selection of patients with consequent optimization of the effectiveness of palliative radiotherapy also in this setting.

Such a strengthening of cooperation between professionals could

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represent an important and useful step towards a better response to the health care needs of terminal cancer patients.

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