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Original Article

Patterns of Practice in Palliative Radiotherapy in Africa — Case Revisited

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Abstract

Aims: To investigate patterns of practice in palliative radiotherapy in Africa.
Materials and methods: Fifteen centres in Africa provided detailed information about radiotherapy in both metastatic and locally advanced disease via a questionnaire. Information included general information (institution status, equipment, staff, patient number), radiotherapy and other treatment characteristics in bone metastasis, brain metastasis, metastatic spinal cord compression, lung and liver metastasis, as well as locally advanced tumours.
Results: The number of patients annually seen/treated ranged from 285 to 5000. Breast, cervix, head and neck, gastrointestinal and prostate cancer were the top five cancers overall. Eight (53%) institutions were without linear accelerators, four (27%) had a single one, whereas one institution each had two, three and four linear accelerators. The number of cobalt machines ranged from 0 to 2 (median 1). Most centres still prefer to use fractionated radiotherapy regimens over single-fraction regimens in bone metastasis, although most centres are now using single-fraction radiotherapy in retreatments. Radiotherapy in brain metastasis and metastatic spinal cord compression mostly conform to worldwide standards. Lung and liver metastases are rarely irradiated, largely as a consequence of the lack of modern radiotherapy technology. Locally advanced disease in various tumour sites was mostly palliated, in agreement with current evidence-based practices.
Conclusions: African countries still lack adequate staffing and equipment to adequately address their clinical burden, being palliative in most cases. Emphasis should also be made on more rationally using existing capacities by using more of the single-fraction radiotherapy regimens, especially in bone metastasis.

Key words: Africa; developing countries; locally advanced disease; metastatic disease; palliation; radiotherapy

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Introduction

Radiotherapy is one of the mainstays of the treatment of cancer. It is frequently estimated that at least 50% of all cases are treated palliatively [1]. In the poorest countries, that figure may go up to at least 60–70%. Multiple reasons for such an estimate include, but are not limited to, poor health care systems, lack of national cancer control programmes and cancer registries, and a lack of public and health care workers' awareness of a cancer problem. As a consequence, cancer figures frequently cited worldwide should be considered as largely underestimating the overall cancer burden.

One of the consequences of the above is poor access to radiotherapy due to inadequate equipment (e.g. few, old and outdated). In addition, human factors, such as a lack of established and accredited training programmes and probable underutilisation of existing resources contribute to this. On the other side, however, through practicing existing evidence-based oncology principles, access to radiotherapy could be improved. In particular, palliative radiotherapy proved to be a fruitful ground for exploring the use of single- and short-fractionation radiotherapy regimens, which were as effective as more prolonged radiotherapy regimens regarding symptom palliation, quality of life and costs [2–4]. Ultimately, it could lead to more optimised access to radiotherapy, not only institutionally, but nationally and internationally as well.

Several years ago, a survey of patterns of practice in palliative radiotherapy on the African continent was carried out on behalf of the International Atomic Energy Agency (IAEA) [5]. Intriguing results prompted us to repeat the effort and revisit the case of patterns of practice in palliative radiotherapy in Africa. It was expected that various initiatives on the continent should have led to more equipment, better education and more standardised evidence-based oncology principles being implemented into a daily clinical practice. This seems to fall into a trend of continuous, albeit modest, improvements on the African continent regarding equipment observed in the past 20+ years [6–8]. Although every effort was made to include the same institutions in the current survey, this proved to be impossible due to specific professional and personal, and, unfortunately, political and economic situations in some of the African countries in the year 2013.

Materials and Methods

For the purpose of collecting data, an *ad hoc* questionnaire was designed and mailed to radiotherapy centres on the continent. The questionnaire consisted of several parts. Part I consisted of general information about the responders and the institutions (e.g. type, existing services, staff and equipment) (Appendices 1–3). Among other questions, it asked about the number of new patients treated per year, stages of the disease and the most common cancers seen. Questions were also asked regarding the availability of a separate medical oncology department, morphine availability for palliative care and the existence of a national cancer control programme in their country. Part II consisted of basic radiotherapy and treatment characteristics of brain metastasis, bone metastasis, metastatic spinal cord compression (MSCC), liver metastasis, lung metastasis and locally advanced disease (e.g. most frequent radiotherapy dose/fractionation regimens, alternative radiotherapy regimens). Part III consisted of important issues in the decision-making process in the initial radiotherapy and re-irradiation and, specifically, collecting reasons behind clinical decisions in these settings. In cases of locally advanced disease, questions included the most common disease sites and symptoms palliated and fractionation regimens used. Special emphasis was made on the case of superior vena cava syndrome (SVCS) regarding the influence of histology, treatment options and the necessity to urgently treat it. No systematic effort was made to discriminate between various planning procedures, due to the understanding that there was a lack of adequate equipment and the more descriptive nature of received reports that was assumed to additionally blur the picture.

Every effort was made to include as many institutions on the continent, and special care was taken to ensure at least one institution per country. Due to the lack and/or poor initial and preparatory communication with some of the African countries/institutions to solicit their cooperation, the final list of institutions to be contacted consisted of 15 institutions in 14 countries (Egypt was the only country with two institutions in this project). Centres in South Africa were not included in this study due to the fact that resources in South Africa are better than the rest of the continent, which may have skewed the comparison data. Although 24 of 35 (69%) centres in the IAEA [5] report responded, in the current study, the questionnaire was mailed to 15 institutions and 15 responses were obtained. In cases of ambiguity or necessity for additional clarification, one or more institutions were additionally contacted and clarification provided. Data were collected between June and November 2013.

Once data were collected, three investigators (BJ, LL, LF) grouped responses according to frequency of occurrence and tabulated responses. No formal statistical analysis was made as this was deemed impossible due to a variety of answers, the reasons behind it and the influence of dramatically different basic characteristics (Part I), which highlighted huge discrepancies in important aspects such as the availability of radiotherapy machines and modern radiotherapy techniques.

Results

All 15 institutions (100%) provided detailed basic institutional characteristics (Appendix 1). The radiation oncologists providing the responses worked for between 2 and 20 years (median 10; mean 10) in the field. Breast, cervix,