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Full Length Article

End-of-life palliative chemotherapy: Where do we stand?



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KEYWORDS

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Abstract *Background:* This study evaluates the use of palliative chemotherapy (PCT) and possible associated factors at the end of life.

Method: The study includes all advanced non hematological cancer patients who died in the King Abdullah Medical City during the period from January 2011 to April 2014. Demographic and disease features were registered.

Results: 420 patients were included in the study, median age 62 years (range 17–108); 52% female and 48% male. 87.4% of patients were Saudis and 12.6% non Saudis.

124 (29.5%) patients received PCT at the last month before death (LM-PCT): 21.8%, 22.6% and 55.6% within one, two and four weeks of death, respectively. Place of death (critical care vs. regular ward) and mode of admission (ER vs. OPD vs. Transferred) had a strong association with LM-PCT ($p < 0.0001$, $\phi = 0.35$) and ($p < 0.0001$, $V = 0.43$), respectively. There was a gradual increase in the number of patients receiving LM-PCT from January 2011 to April 2014; 15.3%, 28.2%, 37.1% and 19.4%, respectively.

Conclusion: In our center; at the end of life, there is a gradual increase in the number of patients receiving chemotherapy which significantly increased cancer patients' odds without clear predictive factors associated with its use, which calls into question the benefits of PCT in terminally ill cancer patients.

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Introduction

Chemotherapy for metastatic solid tumors such as lung, breast, colon, or prostate cancer rarely if ever cures patients. The indication for such chemotherapy is to improve disease-free or overall survival, relieve symptoms, and improve the

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quality of life. Palliative chemotherapy (PCT) accounts for most of the work of everyday oncology given the rarity of curable disease, it may even shorten a patient's life [1].

Many studies demonstrated that PCT given in the last month of life (LM-PCT) is increasing and treatment frequencies from 9% to 43% have been reported [2,3].

LM-PCT was recognized by The American Society of Clinical Oncology to be one of the top-five practices that could improve patients' care and reduce costs, if stopped.

More than 20% of patients receiving Medicare who had metastatic cancer started chemotherapy treatment in the 2 weeks before death [4], with no clear predictive factors associated with this use [5,6]. On the other hand, some studies have shown that ceasing aggressive cancer treatments earlier by introducing palliative care can increase the survival time and quality of life in patients with lung cancer [7].

As we were interested in how to adjust the use of futile chemotherapy in terminal patients, this pushed us to investigate the current practice in the King Abdullah Medical City (KAMC); Saudi Arabia, to determine the proportion of patients with metastatic cancer who ever received PCT and the proportion of those who received chemotherapy within 2 and 4 weeks of death and to evaluate if there are any predictive factors to start PCT at the end of life. A secondary aim was to identify the potential drawback of ongoing PCT in the last month of life.

Materials and methods

The current retrospective cohort design included 429 advanced cancer patients who died in the KAMC during the period from January 2011 to April 2014.

PCT was defined as chemotherapy treatment with noncurative intent. The eligibility criteria were; pathological diagnosis of cancer, evidence of advanced disease and death during hospitalization at KAMC.

We recorded the demographic data of patients, including gender, age at time of death, cancer diagnosis, nationality (classified as Saudi or non-Saudi), and place of death [8]. The data collected from patient charts and from the electronic medical records of the Medica Plus Oncology Management System. Patients were excluded if the cancer diagnosis was a hematological malignancy, if they were not seen by the medical oncology service or if they were treated with adjuvant or curative intent.

Identified patients were divided in two groups: one group had received PCT in the last month of life (LM group) (which is subdivided into patients that received chemotherapy within one, 2 and 4 weeks of death) and the other group that had not received PCT in the last month of life (only supportive care).

Statistical analysis

Data were analyzed using SPSS Version 15.0. The outcome variables were the starting of PCT and continuation within the last one, 2 and 4 weeks of life. The influence of demographic features and cancer characters were determined using the chi-square test. *P* value of <0.05 denoted statistical significance.

Results

During the study period, a total of 429 patients died with cancer in KAMC, 9 patients were excluded due to incomplete data. The median age was 62 years (range 17–108); 52% female and 48% male. 87.4% of patients were Saudis and 12.6% non Saudis.

The following solid tumors types were represented: gastro-esophageal cancer 84 (20.0%), colorectal cancer 61 (14.5%), lung cancer 56 (13.3%), breast cancer 54 (12.9%), genitor-urinary 41 (9.8), HCC 32 (7.7%), biliary tract 23 (5.5%), head and neck 21 (5.0%), cancer unknown 20 (4.6%), gall bladder carcinoma 10 (2.4%), sarcoma 8 (1.9%), CNS cancer 3 (0.7%), and miscellaneous 7 (1.7%).

Among the included patients, 124 (29.5%) received LM-PCT and 296 (70.5%) were treated with best supportive care alone. The patients that received LM-PCT were subjected to intensive medical care in the form of frequent admission to the hospital through ER (80.6%), and about half of those patients died in critical care (49.2%) compared to 33.6% and 15.9% in non PCT.

Chi-square test for independence revealed that LM-PCT had a strong association with place of death and mode of admission. However, no association was found with age, gender, tumor type and nationality (Table 1).

Of the 124 patients received LM-PCT, 63% were below 65 years old. Gender was nearly divided equally between males and females.

Among the patients received LM-PCT, 27 patients received PCT in the last one week of life, 28 patients in the last 2 weeks of life and 69 patients in the last 4 weeks of life. This represents 21.8%, 22.6% and 55.6% of patients who received LM-PCT ($n = 124$) respectively, and 6.4%, 6.7% and 16.4%, among the total number of deaths ($n = 420$), respectively. The distribution as regards each separate year was illustrated in Table 2, and Fig. 1.

Discussion

The availability of new chemotherapeutic agents has caused a subsequent increase in the length of time patients are receiving chemotherapy. It is not easy to identify the role of end of life chemotherapy. While the use of chemotherapy and its tolerability are increasing, balancing the risks and benefits of such a treatment is getting more complex. Ultimately, it may involve judgments about the use or restraint of use of costly resources despite little chance of benefit [8]. Deciding when to discontinue chemotherapy is often challenging, however, given limited data on whether chemotherapy is helpful or harmful in the final months of life.

This study to my knowledge is the first to describe the pattern of PCT utilization and continuation until the end of life in King Saudi Arabia. This study revealed that, among the patients with advanced cancer; 29.5% received LM-PCT. Multiple studies reported the increase of PCT practice. In Italy, within 30 days of death, 23% of patients with incurable cancer received PCT [6]. This was within the range of previous published results, 18–33% [9–11].

Among the identified patients who had been received PCT, 21.8% was commenced in the last week, 22.6% in the last

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