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Integration between oncology and palliative care – a plan for the next decade?

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Abstract

With the groundbreaking works of the three Milan professors, i.e. Bonadonna, Veronesi, and Ventafridda, in the 1980's as the starting point, this article aims to shed light on the potential benefits of a closer and more formal integration between oncology and palliative care. More specifically we will address why integration is needed, how to do it, and what are the potential benefits to the patients, the families and the society.

The costs for cancer care are increasing rapidly. Especially during the last year of life, some treatments are futile and expensive without proven benefit for the patients in terms of prolonged survival with adequate quality of life (QoL). The latest WHO definition of palliative care supports an "upstream" introduction of palliative care. More recent studies indicate that such an early integration has the potential to improve the patients' QoL and reduce their symptom burden.

Successful integration presupposes formal structures and explicit obligations on how and when to integrate. The Norwegian model for palliative care is presented. It covers the range of oncological and palliative services from community health care via the local hospital to the tertiary hospital and rests on standardised care pathway as the key instrument to promote integration.

Our present state of knowledge indicates that integration does not shorten life, perhaps even the opposite. Futile oncological treatment can be reduced and the QoL of patients and carers improved. We need more evidence on the potential effect upon costs, but present data indicate that integration does not increase them.

Keywords

Oncology, palliative care, integration, futile treatment, end of life care, research collaboration

Introduction

In 1983 Stein Kaasa started his training in medical oncology and radiotherapy at the Norwegian Radium Hospital, Oslo, Norway after internship and one year as general practitioner. At that time there were vigorous discussions during and after the demonstration of the x-rays of the patients. The head of the department, Prof. H. Høst, whom is a well cited clinical scientist in oncology (1) continuously referred to “the Milan breast cancer group” and specifically to the medical oncologist Prof. G. Bonadonna (2). To be trained in oncology at that time and not being aware of adjuvant treatment for breast cancer with cyclophosphamide, methotrexate and 5-fluorouracil (CMF) invented and “proven” to be effective in high quality clinical trials, would have been totally unacceptable (3, 4).

Later, during Kaasa’s first years as a junior doctor there were also intensive discussions about surgery for breast cancer patients. A second pioneer from the Milan group, a surgeon, was also outstanding in the world of breast cancer care, Prof. U. Veronesi. With the same spirit, to my understanding, he pushed the field of breast cancer care with innovative approaches, like Prof. Bonadonna, by systematically evaluating new surgical techniques for breast cancer care - “from mastectomy to quadrectomy”(5).

Some years later, in 1992, after Kaasa had finished his training in oncology and the PhD thesis in medicine focusing on quality of life in lung cancer patients, he met Prof. V. Ventafridda for the first time at the European Association for Palliative Care (EAPC) congress in Brussels. Prof. Ventafridda was a pioneer in the area of palliative medicine and palliative care, by initiating the palliative care programme at the Istituto Nazionale dei Tumori (INT) in Milan and he was also the founder of the EAPC in

1987, and one of the “inventors” of the World Health Organisation (WHO) pain ladder (6, 7).

To our understanding, these are the similarities and differences between the three outstanding clinicians, researchers and innovative thinkers from INT in Milan working together in the same period. They all:

- were leaders in their fields
- brought cancer care to new heights
- performed clinical trials systematically to prove the clinical benefits of new treatments
- had a clear focus in their approaches
- ... but had different foci; the chemotherapy approach, the surgical approach and the palliative care approach

For more than 25 years ago the link between the chemotherapy/radiotherapy approach, and the palliative care approach was not evident. At that time it was argued that palliative care (starting with hospice care in the mid 1960-ies) had a “holistic approach” also named “the total pain approach” in contrast to the more “narrow minded” oncology approach, primarily focusing on the tumor and how the tumor could be treated (8).

In 2016 the patients, the families, and the society are expecting more from modern cancer care than a narrow minded approach. In a simplistic way one may say that the expectations go in the direction of higher cure rates (reduced cancer related mortality) - as Bonadonna significantly contributed to by the adjuvant chemotherapy approach - improved survival, to live longer with the disease as well as improved quality of life (i.e. symptom control, sustainability of physical function, coping with the

disease and the accompanying psychological challenges, patients involved in the decision making, better end of life care and care for the family after death of the patients).

If these issues had been on the arena in the 1980-90-ies, the Milan trio Bonadonna, Veronese, and Ventafridda would have taken the international lead also in this area of cancer care; “the integration or the complementarity of main stream oncology and palliative care”. The aims of this article is to shed light on the potential benefits of a closer and more formal integration between oncology and palliative care in the special cancer care centers. More specifically we will address why integration between oncology and palliative care is needed, how to do it, and what are the potential benefits to the patients, the families and the society.

Why is integration between oncology and palliative care needed?

The cancer incidence and prevalence are steadily increasing and are expected to continue to increase in the forthcoming decades (9). In 2012, 2.45 million new cases were diagnosed with cancer in 40 European countries, and 1.75 million patients died from cancer (10). In Figure 1 it is visualised how the incidence and survival have increased linearly from 1965 to 2015 and a slight reduction has been observed in mortality from approximately year 2000 (11). Basically these figures illustrate that the cancer burden has increased dramatically, more patients are cured, more patients are living with cancer, but that the number of patients dying from cancer is relatively stable making cancer the second most important cause of death in Europe after cardiovascular diseases. The improved survival is explained by several factors one of which is improved oncological treatments.

[Insert Figure 1 about here]

The major “driver” for the increasing incidence and the accompanying increase in prevalence is the ageing population. For many patients, cancer has become a chronic disease, either due to late or long-term effects or due to an increased number of treatment lines that prolong life but does not cure the disease. The proportion of the total cancer population belonging to the latter category is presently uncertain, but the number is increasing based upon observations of the enrolled patients at our hospital. Caring for them is often resource-consuming in terms of diagnostic tests and treatments. Further, many of the patients present with complex problems related to the disease and the treatment such as bothersome symptoms and/or psychosocial problems. The latter might include problems with psychological adaptation, family function and work-related problems. Adding this to a stable number of deaths from cancer, the need for palliative care is expected to increase also in the years ahead.

As long as the treatment intention is curative, we find it pertinent to use the term supportive care for interventions that might also be core parts of palliative care such as pain relief. We thereby stick to the latest WHO definition of palliative care defining palliative care as *“an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual”* (12). Quite interestingly, the WHO-definition also points to an early integration of oncology and palliative care by stating that “palliative care is applicable early in the course of illness, in conjunction with other therapies that are intended to prolong life, such as chemotherapy or radiation therapy, and includes those

investigations needed to better understand and manage distressing clinical complications”.

Best possible quality of life (QoL) is the main goal of palliative care. Optimal symptom management is the primary means to achieve it. Still, the ambiguous concept of QoL is not defined by the WHO-definition, leaving its content open to interpretation. In line with the 2006 Food and Drug Administration Guideline, we define QoL as *“A general concept that implies an evaluation of the impact of all aspects of life on general well-being”* (13). Furthermore, the WHO definition also state that: *“.....palliative care affirms life and regards dying as a normal process”*.

These definitions illustrate that oncology and palliative care have goals being supplementary; disease control as the main goal of oncology and best possible QoL for the patients and their families as the main goal of palliative care. This implies that integration can be a feasible approach for providing the best care for patients with incurable disease. In the clinical context, the main question for the oncologist is to decide when the cancer-directed treatment no longer gives the patient the life-prolongation as expected from the trials upon which the treatment is based, or when the treatments' negative impact on QoL overweighs the gain in expected survival. Basically this is a question about prognostication, which is a challenging task for the treating physician (14). For palliative care, intervening early implies that this care also needs to know the evidence-base for the oncological treatment and also the expected disease trajectories of their patients in order to provide optimal care that improves or maintains the QoL of their patients irrespective of their prognosis.

Apart from the definitions described above, which point to integration as a desired approach, there are other factors that have made integration of oncology and palliative care a topical issue in present oncology. These are reflected in the American Society of Clinical Oncology's (ASCO) provisional clinical opinion (15), recently being developed into an updated ASCO-guideline (16)). These statements were partially based on normative grounds. They may also be understood in the lights of societal needs such as reducing costs and upon developments within oncology and palliative care as such.

The rapidly increasing complexity of oncological treatment implies a considerable increase in costs of care. This increase actually threatens the sustainability of the present health care services in general, but specifically in cancer care (17). The increasing use of chemo- and radiotherapy and advanced imaging (CT/MRI) during the last 12 months of life, has led to escalating costs and high treatment complexity, despite insufficient documentation of efficacy. In a recent published national French study all cancer patients in a given time period who received chemotherapy were analyzed. Very high rates of use of chemotherapy were found: 39% received chemotherapy during the last three months of life and 20%, and 11% the last month and the last two weeks of life, respectively (18).

For the treating oncologist, this is a challenge. A recent article examined the rationale for discontinuation of chemotherapy for metastatic non-small-cell lung cancer (NSCLC), and identified a huge variability in these processes, unrelated to time of death (19). This is in contrast to the fact that patients, families, and oncologists are recognising the administration of chemotherapy near death as futile and an indicator of poor end of life care (20). Although it is challenging to study this

topic with robust methodology, there are clear indications that patients who receive intensive treatment at end of life have poorer quality of life compared with those receiving symptomatic treatment (21).

Some studies indicate that an early introduction of palliative care to patients with unfavorable prognosis may improve their QoL, enhance symptom control (22), and that it possibly also may lead to prolonged survival (23). The interventions also point to integration as a mean to give patients and carers a more realistic perspective on the disease and prognosis (23-25).

Despite a rapid development of palliative care services during the last 15-20 years, there is still a distinct separation between oncology and palliative care in many Western countries (26). Palliative care provision is heterogeneous, often delivered in separate departments or even outside the hospitals at which the oncological treatment is delivered. In order to deliver personalised care when the patients are still receiving cancer-directed therapy, palliative care must be “on spot”, i.e. must be where the patients are. Palliative care models applied in studies of integration with oncology, address a spectrum of symptoms/issues that cannot easily be handled in a busy oncological outpatient setting.

Information given to cancer patients and carers about the disease, its treatment, and expected results is important at all stages of disease. Especially such information is crucial when life expectancy is limited as it may facilitate shared decision making and thereby improve satisfaction with care and patients' sense of control in a vulnerable phase of life. An explicit sharing of “caring obligations” can improve the care by a

shared and structured commitment between oncology and palliative care for the patients prior to the traditional end of life phase.

How to do it?

Given the increasing complexity of treatments, physicians face increasing number of treatment choices that often have to be taken based upon their individual evaluation of each given clinical situation. Such evaluations may be limited by the individual physician's skills and his/her professional environment. The well-known difficulties related to changing established practice based upon studies, reviews and even guidelines must be understood in light of individual, systemic and cultural factors. Therefore a stronger focus upon the implementation of new knowledge and how this can change practice is warranted. In the context of integrating palliative care and oncology, having the opportunity to refer to palliative care is probably not enough to secure that each individual patient experience the benefits of both oncology and palliative care. Perceived time-constraints, personal attitudes and preferences, established routines, and professional subcultures are some factors that explain the low referral rates to palliative care in many hospitals having both services available. In our view a structured and more transparent approach is therefore needed. Standardised care pathways is such an approach giving the opportunity to combine clear definitions of professional tasks and obligations at defined time points with best available evidence.

Intensity of symptoms and level of functions may vary over time during the disease trajectory and different treatments. Therefore it is necessary to have a dynamic structure to improve quality of life of the patients. The organisational structure of

health care services should address the dynamic needs of patients and palliative care services should be available to the patients during life-prolonging treatments and also for all patients during curative treatment in order to alleviate distressing symptoms and to deliver psychosocial support during and after treatment.

In order to apply to the content and to set a new structure in cancer care, some modifications of thinking and structure need to be undertaken. Table 1 illustrates some of the key elements for “modern palliative care”.

[Insert Table 1 about here]

A model of early and integrated oncology palliative care - a Norwegian experience with Italian help

The development of this structure of integrated cancer palliative care has evolved over years. In Norway it started in 1993 when the palliative care programme was launched at the university hospital in Trondheim and evaluated in a cluster randomised trial (24, 27) inspired from the work at INT in Milan in the early nineties (28, 29). In this first model of care the palliative medicine unit (PMU) consisted of a 12-bed inpatient acute unit, an outpatient clinic, and an ambulatory team available at all parts of the hospital. In order to make the model sustainable both from an economic and professional competence point of view, the PMU was established as an integrated structure within the department of oncology. The consequence was that the inpatient and outpatient activities were organised independently from mainstream oncology at daytime where physicians on call could either be from the PMU or from the department of oncology. Four key elements constituted the program: 1) all in- and outpatient hospital palliative care was provided by the PMU 2) strengthened

collaboration with the community care services including general practitioners (GPs)
3) guidelines for continuous interaction between hospital and community care, and 4)
educational programme for community care professionals.

[Insert figure 2 about here]

This model has later been further developed in Norway as described in figure 2 and in the national guidelines for palliative cancer care in Norway (30, 31). Thus, in Norway, it is nationally agreed that palliative care should be an integrated part of the national health care system; both at the specialised university and local hospital level and at community level i.e. homecare, general practitioners and nursing home care. In this model the general practitioners and the home care nurses are responsible for visiting, treating, and caring of the patient in community care and at home. If the patient needs to stay at an institution for days and weeks, the first place to consider is the local nursing home with specialised palliative care beds. If specialised hospital care is needed, patients are admitted to the oncology palliative care programme at the local hospital. A few patients with challenging symptoms and other problems will be admitted to the PMU at the university hospital. For oncology this means that the health care authorities have asked for establishment of palliative care programmes at all four university hospitals in Norway, at local hospitals and at the community care level. This model is further supported by the latest national cancer strategy for Norway 2013-2017 (32). Here it is stated that palliative care should be an integrated part of the cancer care pathways. Furthermore, it is stated that Norway will be a leading country in the use of standardised care pathways (32).

At this early stage in the 1990's competence in palliative care in Norway was not formalised and the physicians both in hospital and community care had to receive

training from formal and informal courses, tutorships, and visits at international palliative care programmes. Later, in the Nordic countries, education in palliative medicine was formalised through the establishment of the Nordic course in palliative medicine (33) and since 2011 formalised as a “built upon specialty” in Norway (34). This formal education was based on a holistic philosophy with a multi-disciplinary approach to address patients’ and their families’ needs.

A structure of integration between clinical practice and research

As in medicine in general, the goal within palliative care is to conduct evidence based clinical practice. In order to reach this goal it is paramount that clinical care is totally integrated with clinical research. This model is to a certain extent mirroring the oncology model with total integration between clinical practice and research. At present the next step is to improve integration and to close the gaps between research and education as well as between “mainstream oncology” and palliative care research. From a palliative care perspective the field needs to reach a certain level of research competence in order to be an interesting “collaborator” for oncology research.

In 2009 the European Palliative Care Research Centre (PRC) was established in Trondheim as a partnership between the Trondheim University Hospital, the Norwegian University of Science and Technology (NTNU) and the Norwegian Cancer Society (35, 36). PRC is having a major international outreach with at present key collaborators from 15 international (from Europe, North America and Australia) and seven Norwegian institutions being successful as measured by 142 publications being published in international peer reviewed journals during the last five years. In

addition, a very close collaboration with INT in Milan has existed since before the establishment of the PRC and has been further developed in recent years. PRC aims at improving palliative care through research, education and implementation of research findings in an international setting. The research priority for the next five year period is to intensify and deepen research on host- and tumour related factors in cancer patients with a primary focus on pain, cachexia, and central nervous system (CNS) affections.

This collaborative model of clinical research in palliative care is outlined in Figure 3. As the figure expresses, the structure of collaboration has the potential to further develop into collaboration with “mainstream oncology”. We have already conducted collaborative research projects in palliative radiotherapy of lung cancer (37), radiotherapy of painful bone metastases (38) and of symptom management during chemotherapy (39).

[Insert figure 3 about here]

Challenges and solutions for the future

In order to reach the overall goal of practicing evidenced based medicine in both palliative care and oncology robust systems for the formal and informal collaboration in clinical practice and research are needed. A (standardised) care pathway is defined by the European Pathway Association as *“a complex intervention for the mutual decision making and organization of care processes for a well-defined group of patients during a well-defined period”* (40). This is a method which can be applied to implement results from research into patient centered care (Figure 4) and can be

regarded as universal to be applied in both oncology and palliative care simultaneously.

The key challenge is to develop the standardised care pathways detailed enough so that the “patient flow” can be planned according to the needs of each individual patient. In other words, the standardised care pathways need to be both sufficiently detailed, but also flexible in order to address individual needs. By including the integration goal with the planning methodology i.e. standardised care pathways for oncology patients at any stage, the WHO goal of optimal quality of life for the patients in our opinion can be reached.

[Insert Figure 4 about here]

The totally integrated model between community health care and specialised health care at local and university hospitals presented earlier in the present paper (Figure 2) is now being prospectively evaluated in “the Orkdal Model” (41). In this model there are in our opinion some universal challenges for oncology and palliative cancer care (Table 2).

[Insert Table 2 about here]

Symptom management is essential in oncology both for curative, life prolonging and palliative treatment intentions. It has been recommended to routinely assess and screen for symptoms in cancer care. Until recently, if performed, paper and pencil methods were applied (42). The introduction of modern information technology software and hardware has given the possibility for new solutions for computer based assessments of symptoms and functions.

At the European Palliative Care Research Centre, NTNU we have developed new interactive software called “EIR” for symptoms assessment. In this system used on an iPad or similar, the patient completes the symptom assessment him or herself. First a symptom screening is performed based on the screening (stage 1) and thereafter more detailed questions are completed custom made for each individual patient (stage 2). This gives a more detailed classification and information about symptoms and conditions such as depression, cancer pain, cancer neuropathic pain, cancer cachexia etc. Then the data are wirelessly transferred (stage 3) to the working station of the physician where the symptom profile is presented and where advice for treatment and interaction may be given (figure 5c).

[Insert figure 5bc in about [here](#)]

Comment [TL1]: 5c priority

What are the potential benefits to the patients, the families and the society?

The overall aim of palliative care in cancer care is to improve patients' QoL. In other words the approach is patient-focused and not focused on the tumor, but on what the tumor does to the patients. This means the consequences on the “host” caused by the tumor from metastatic or local regional disease. The palliative care approach is symptom and function oriented. Physical, mental, social, and spiritual functions are to be addressed and intervened upon according to the patients' needs.

By combining the structure of the standardised care pathway, the symptom assessment EIR and the basic structure of the organisation in our health care system, we believe that a better patient centered care can be achieved in oncology. The main challenges are probably to change health care providers' attitudes and behaviors. However, these models of care which can be considered to be more

patient centered will probably both be more cost effective, give better resource allocation and high level of patient and family satisfaction.

Patients and families today are expecting a total care approach independent of the treatment intention being curative, life prolonging, palliative or end of life care. The competence of oncology – with basic and clinical knowledge on how to treat the tumor and care for the patients - and the palliative care approach with specialist skills and knowledge of symptom assessment and management, psychosocial and spiritual issues as well as expertise in coordination of the care processes will, if well integrated, planned, and conducted have the potential to offer “optimal cancer care”. Standardised care pathways may be used as a method for optimal patient centered planning. Patients are often asking “what is happening to me?”, “what is the plan?”, and “who are caring for me?”. Optimal standardised care pathways can be given to the patients as individual plans with clear definitions of who are doing what at any given point in time. This also includes a clarification of how oncologists and palliative care physicians work together at any time during the care trajectory – to be the best for the patients and their families.

Conclusion

It is impossible to know whether the “Milan trio” – Bonnadonna, Veronesi, and Ventafridda would have agreed in the approach of “total integration” of medical oncology, radiation oncology, palliative medicine and surgical oncology. They may have agreed to sit down and make common plans for clinical care – and they may have identified areas of care which need improvements. Most probably they would

have agreed upon common research proposals – in the name of better quality of life for all patients.

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