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Pain assessment: The role of the radiation therapist

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Abstract

Purpose The focus of this study was to explore the possibility of extending the role of radiation therapists in Ghana to include pain assessment of the patients they are in daily contact with. The study was carried out at the radiation oncology department of a large teaching hospital where the circumstances demand the exploration of ways to maximise the effectiveness of the multidisciplinary team in the holistic care of cancer patients.

Method A case study approach was used to gather text data through interviews (individual and focus group), participant observation and field notes (radiation therapist and researcher).

Result By extending the role of the radiation therapist to include pain assessment; the quality of care to cancer patients improved, the workload of the few available radiation oncologists was reduced and patient satisfaction increased.

Conclusion It is recommended that the role of the radiation therapists at the study site is extended to include pain assessment through the application of a structured protocol.

Keywords
Cancer pain; pain management; radiation oncology; role extension, therapy radiographer

Introduction

A radiation therapist (RTT), who is also sometimes called a therapy radiographer or radiation therapy technologist, is a key member of a radiation oncology multidisciplinary team that provides a supportive patient-centred service [1]. A RTT prepares the radiation therapy treatment through simulation and planning in collaboration with a radiation oncologist (RO) and medical physicist, and is responsible for the administration of the treatment [2] during which a supportive relationship with patients is developed [3]; this contributes to the management of radiotherapy side effects, the assessment of patients' psychosocial and physical status and provision of appropriate referral [4]. 7 Department of Health, 10 key roles for Allied Health Professionals, Department of Health, London (2003). Many RTTs now have wider responsibilities and work beyond their traditional boundaries [5].

Pain assessment was identified as a possible area for RTTs, in Ghana, to extend their role. Effective pain assessment serves two important purposes in radiation oncology; firstly pain assessment may be used to identify a change in the progression of the disease, for example, pain is a signal for metastases; secondly pain assessment can be used to track changes in the patients' quality of life and to identify where treatment of this distressing symptom is required [6].

In Ghana, the role of pain assessment was unstructured and no protocol or tools existed to facilitate routine pain assessment by RTTs. This study therefore sought to investigate and understand the place of pain assessment as an extended role of RTTs. The aim was to improve the contribution of an RTT to pain management in order to benefit patients and the radiation oncology team.

Methodology

A case study approach was applied to gather text data through open conversational interviews (individual and focus group), participant observation, field notes of RTTs and the researcher's diary. The RTTs administered a pain-questionnaire to 90 participants (patients) over a period of three months. This generated quantitative data on the pain experience of the group which is to be published as a separate paper. The relevance of the questionnaire to the aim of the research presented in this paper was that it offered the RTTs an opportunity to include this role in their daily routine. Through this process meaningful data were gathered via field notes and interviews. Furthermore, it allowed all members of the patient care team to evaluate the inclusion of pain assessment as a role of RTTs and this generated relevant interview data.

Such a case study is an in-depth investigation of a single individual, group, incident, or community [7] which provides a systematic way of looking at events, collecting data, analyzing information, and reporting the results [8]. It can also include experiments [7] and surveys [9]. When doing a case study it is important to use information-learning sampling thus seeking information from participants and the environment which in turn can affect the research design as the information is uncovered and revealed [8]. Data in this study were collected from professional participants, namely RTTS, a nurse and a radiation oncologist (RO). The field notes, observation records and documented interviews generated text data.

The data sources were analysed using the descriptive method of analysis of Burns and Grove [10]. The explanatory stage involved the researcher reading the text data several times in order to become familiar with the data and to determine whether the data were self explanatory [11]. The interactive stage involved reflection as the researcher critically examined assumptions and actions of the participants. During the interpretation stage, the researcher interrogated and interpreted the data and then integrated personal insights into the findings. The process was that of examining, categorizing and coding data into identified, or emerging themes, in order to address the research questions [12].

Approval for the study was obtained from the research ethics committee of a higher education institution. The ethics approval was supported by written permission for the study to be conducted at the study site with the ethical standard of confidentiality being upheld. All study participants gave informed consent prior to the commencement of the study and each data collection activity.

Results

The text data gathered through this case study included the following data collection activities:

i. Interviews with a radiation oncologist, a nurse and the RTTs,
ii. Field notes recorded by the RTTs and the researcher documenting verbal narratives and participant comments, and
iii. Field notes as reflective writing by the researcher following participant observation in the work environment.

Thematic data analysis of the text data produced emerging themes; 1) the current role of the RTT, 2) RTT's role in pain assessment and management, 3) role extension, 4) improved patient care and 5) barriers to role extension.

Responses and comments from the participants are in italics in the findings presented below.

1) The current role of the RTT

The existing duties of the RTT in the research site were reiterated. The role of RTTs in the radiation oncology department was described by an RTT as being *our duty is to position patient for simulation and treatment … We observe patient undergoing treatment and report any clinical complication to the RO.* Another RTT confirmed the role of the RTT in Ghana as being focussed on treatment and patient care because … *we administer prescribed treatment dose to patients accurately … we give emotional support and advice to our patients … We ensure that radiation protection measures at the treatment area are adhered to by all staff and patients.*

The role of the RTT with respect to pain was noted and includes careful positioning of a patient in pain. Participants with head and neck cancer, who had either a tracheostomy or had a treatment reaction resulting in wet desquamation, had difficulty in lying down with their head on the head rest. The RTTs provided particular care by supporting either the participants' heads or necks during positioning until they were comfortably lying down. Other roles with respect to pain included counselling of patients and answering patients' questions.

2) RTTs' role in pain assessment and management

The participants were grouped into three categories:

- Patients needing urgent attention from a doctor were identified as being (a) patients with no response to prescribed pain medication, (b) patients whose daily activities such as sleep, work, and mood are affected by the pain, and (c) patients with constant pain. The role of the RTTs in this category was found to be to refer patients immediately to a doctor.

- In order to reduce the workload of the few doctors and reduce patients waiting time, a category called 'watchful waiting' was identified. These are patients who can wait till their scheduled review date to see the doctor but with the inclusion of a note in their folder about their condition and pain assessment. The RTTs 'watchful' role for this group was daily monitoring to take note of any changes in the patient's pain and giving reassurance to the patient. The 'waiting' aspect was the responsibility of the participants to patiently wait till their review date was due. The participants were informed to report to the RTTs on duty if they noticed any change in their condition.

- The final category was the group that RTTs could manage participants until any change in their pain occurred since they experienced mild, occasional pain or experienced mild pain from the radiation treatment.

During the study it was evident that RTTs could help in the management of patients on treatment and thereby reduce the workload of the doctors. RTTs assessed participants' pain and the outcome of their assessment brought much attention to the quality of service delivered to patients in the department. One of the RTTs asked a question … *should pain assessment end after this study?*

This developed into a discussion on role extension where the role of a RTT in pain assessment and management was discussed in terms of what a RTT could do to help a patient with pain. RTTs see their patients for the first time during simulation apart from those patients needing emergency treatment. RTTs then see their respective patients daily for each radiation treatment. This study emphasised that a RTT is well positioned to make a major contribution to holistic patient care and the RO stated … *Well you guys are doing well even though there is more room for improvement. The only problem I have with you is that you keep referring patients to us.* RTTs also indicated opportunity for contributing to the care of patients with pain, for example … *Personally it (patients with pain) is a concern to me, and I think that the earlier we do something about it the better … I believe that we can comfort them so that they don't feel depressed and I think we can reassure and encourage them to continue the treatment because stopping the treatment wouldn't help either.*

Although the majority of the RTTs were of the view that pain assessment and management could be a role extension for the RTTs in Ghana, one RTT thought otherwise, namely was of the view that management of pain was not his responsibility and felt reluctant to help a patient assigned to him during the study.

3) Role extension

Role extension generally is considered by RTTs in Ghana thus it was a recurring theme in data gathered from the RO and the RTTs. One view is that routine quality control which is done by the medical physicists in the department should be the duty of the RTTs. The RTTs described it in this way: *It is our duty to ensure routine quality assurance (control) on the treatment machine and the simulator.*

There is also an identified role for RTTs in treatment planning since *we have to help in the treatment planning so that we can insist on patient's plan before treatment, and we should begin insisting on patient's plan before treatment now that we have the three dimensional treatment planning system.*

4) Improved patient care

Data revealed that the workload of the RO is high: *ROs help RTTs during simulation, draw treatment volumes for patients that were planned, prescribe radiation doses for treatment, are involved in clinical mark-ups for patients … They are part-time lectures in the University of Ghana.*

There was a clear indication that patient care was unavoidably hampered by the heavy workload of the medical staff:

- *The doctor forgot that I was waiting … I don't know where the doctor went … the doctor received a phone call and excused me and for 40 minutes, I was still waiting … I am sure it was not intentional but I was very upset.*

- *I prepared the patient an hour ago and called the doctor three times but the doctor never showed up till I went to (the) consulting room.*

- *The patient was lying on the bed for almost 45 minutes and the doctor was not coming … As I decided to get him from the bed, the doctor showed up and apologised … Apparently the*

doctor was called into the brachytherapy room … All I needed from the doctor was to check the field so that I could take my films.

Evidence shows that when patients are delayed at any point, the flow of work in the department is negatively affected. A way to improve patient care would be by increasing the responsibility of RTTs so that they share the load of the doctors more as indicated in the following responses.

- *… you can sometimes use you discretion on which patient sees a doctor and when … I believe we are all professionals and sometimes we can help each other. You don't need to send all patients to us.*
- *… why can't we take care of our own patients … I think that if we did, it will help solve all these problems … they spend too much time during review … and when they come back they want to have their treatment immediately because they think they reported early …*

5) Barriers to role extension

Good pain assessment is an essential step in pain management which requires a multidisciplinary approach in order to give the optimum outcome for the patient. RTTs who hope to include pain assessment into their existing roles must be aware of the challenges and barriers involved. Some of the challenges encountered in the study were language barriers; lack of clearly defined description for pain; time; funding, and attitudes of staff.

Language barriers in a multilingual environment can lead to misinterpretation of information obtained, especially when one has to interpret one local language to another local language and then into English. One study showed that family members and relatives of the patients tend to overestimate pain in the patient for various reasons [13]. We therefore need to be aware that due to the need for interpreters there may be exaggeration leading to incorrect assumptions which could influence management.

The findings suggest that the ability to understand and interpret information obtained from some of the patients was very difficult, for example

- *… some of the patients I met couldn't have any appropriate word to describe their pain, some used some jargons which I understood but I couldn't translate them into English, or even in the local language.*
- *… One patient said I felt like 'brrrr', whereas another said 'ashhh', and 'hooo'.*

The challenge of the limited time for RTTs to assess pain coupled with the busy nature of the working environment and the limited number of staff in many oncology centres may contribute to inhibiting the development of including pain assessment as an extended role. The reluctance of management to support staff with funds for studies or role extension activities and the lack of flexibility in working conditions were identified as a challenge. Within the profession itself it is the attitudes of some radiographers, such as their lack of passion and interest for the profession, lack of motivation, lack of vision and resistance to change that have been identified as barriers towards role development [14].

Discussion

The existing role of RTTs in Ghana encompasses delivering the prescribed radiation dose to patients, simulation, preparation of customized shielding and immobilization masks for patients on treatment as well as attending weekly review meetings to evaluate patients' during radiotherapy.

Due to the many referrals, as a result of the increased level of awareness of the public about the disease, the workload of doctors has increased and as a result patients' waiting times have increased. This makes it necessary for RTTs to extend their roles in order to improve the quality of care to patients. One important role identified is that of assessment of pain because it is the most frequent complaint associated with patients with cancer [14]. In this study the focus was on RTTs' role with regard to the assessment of pain. The role identified was assessment and review of patients with pain. RTTs were able to develop a daily monitoring plan for patients especially those with pain. Although this role existed before the study it was expanded through the application of a structured procedure and pain questionnaire. This sensitized the RTTs to pain in cancer patients and also developed their clinical competence and knowledge such that they were able to give assurance and reassurance to patients in pain. In addition, patients benefited from the education and counselling provided by the RTTs on ways to cope with their pain. Relatives of patients also benefited from the coaching provided by the RTTs on how to help the patient at home.

A major concern for RTTs is that the patient remains in the same position throughout treatment in order to achieve accuracy in dose delivery. A comfortable treatment position in radiotherapy may therefore promote patient stability and contribute to the best possible patient experience [15]. RTTs working in the study site are now more conscious of this and the quality of care has been improved.

Throughout this case study, RTTs promoted treatment planning as a routine practice in the radiotherapy department as it was observed that patients whose treatment was not planned had more likelihood of radiation induced pain due to the severe side effects which they suffered.

Extending the RTTs role would enhance future recruitment and retention and will bring more recognition of the profession. Finally including pain assessment into the role of the RTTs would provide a patient-centred service that offers a supportive environment for patients with pain, provide increased job satisfaction for the RTTs and relieve the workload on the doctors. While it will increase the work load of the RTT this is a welcomed challenge for most.

Conclusion

RTTs play a vital role in the treatment of cancer patients. In performing their routine duties, additional responsibilities are identified and performed willingly to meet the need of patients under their care. A specific area of added responsibility is the assessment of pain. There is no doubt that very significant progress has been made towards role development in the radiography profession in the developed countries, and no one can deny the advancement of practise amongst RTTs in such countries [16]. Africa has not had much development in the radiography profession [17]. However, extended roles have always developed in a particular locality when the local conditions in that environment have permitted and created a need [18] and if only we can respond to the need for it in our various departments, it should become an ever expanding reality. With initiatives and support from all stakeholders, the vision of role extension in pain assessment led by the RTT will transform into routine practice in Ghana.

References

1. *American Society of Radiologic Technologists (ASRT)*. 2007. Who are radiologic technologists? Accessed on 22/8/09. http://www.asrt.org/content/abouttheprofession/Who_Are_RTS.aspx.
2. Cardiff University. 2007. *Therapeutic radiography*. Accessed on 15/1/08. http://www.cardiff.ac.uk/
3. Leaver, D. & Teresa, N. 2000. Advancing radiation therapy education and practice, *Radiation Therapist*, 9 (1): 80-96.
4. Bureau of Labour Statistics. 2007. U.S. Department of Labour, Occupational Outlook Handbook, 2008-09 Edition, *Radiation Therapists*. Accessed on 28/10/2009. http://www.bls.gov/oco/

ocos299.htm.
5. Treeby, J. 2008. Prospective cohort survey of patient satisfaction with on-treatment review by advanced practice urology radiographer. *Journal of Radiotherapy in Practice* 7, 205-212.
6. Ross, C. 2000. Should reporting radiographers be able to request additional projections? *Synergy*, 004, February.
7. Jon, S. & Greene, R. W. 2003. *Sociology and You*. Ohio: Glencoe McGraw-Hill. 22
8. Flyvbjerg, B. 2006. Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12 (2): 219-245.
9. Yin, R. K. 2009. *Case Study Research: Design and Methods*. Fourth Edition. SAGE Publications. California, 12-18.
10. Burns, N. & Grove, S. K. 2003. *Understanding nursing research*. 3rd edition W.B. Saunders Company, 375-380.
11. Schwandt, T. A. 1997. *Qualitative Inquiry: A dictionary of Terms*. Sage Publications, Thousand Oaks.
12. Yin, R.K. 2003. *Case study research: design and methods*. London: Sage Publications, 5-7.
13. Elliott, B. A., Elliott, T. E., Murray, D. M., Braun, B.L. & Johnson, K.M. 1996. Patients and family members: the role of knowledge and attitudes in cancer pain. *Journal of Pain Symptom Manage*, 12: 209-220.
14. Society and College of Radiographers. 2008. *Scope of Radiographic Practice 2008*, UK. Accessed on 30/09/09. http://www.doc-lib.sor.org/
15. Cox, J. & Davison, A. 2005. Comfort as a determiner of treatment position in radiotherapy of the male pelvis, *Radiography*, 11: 109-115
16. Kelly, J., Piper, K. & Nightingale, J. 2008. Factors influencing the development and implementation of advanced and consultant radiographer practice, A review of the literature, *Radiography*, 14: 71-78.
17. Barare, C. 2008. *Bridging the divide: an African initiative*. Paper presented at the 15th ISRRT World Congress, 23-28 April, Durban, South Africa.
18. Smith, T., Yielder, J., Ajibulu, O. & Caruana E. 2008. Progress towards advanced practice roles in Australia, New Zealand and the Western Pacific *Radiography*, 14 (1): 20-23.

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