



Experience of an interdisciplinary research for radiation therapists

Most frequent cancer in Europe, the prostate cancer is the third cause of mortality by cancer for men over 50 years (1). Radiation therapy is widely used as main treatment (2). Several studies highlighted the interest to increase the dose in order to decrease the risk of local and biochemical control, but that is not without consequences on the surrounding healthy tissues and more specifically the organ at risks such as the bladder and the rectum (3,4). With Intensity Modulated Radiation Therapy treatment (IMRT), the dose distribution is more conformed into the target volume and the organs at risks more preserved (5). The complexity of IMRT plans requires an accurate reproducibility of the patient positioning and in particular a reproducibility of the Clinical Target Volume (CTV), the bladder and the rectum in the context of prostate radiotherapy. Image Guided Radiation Therapy contributes to the accuracy with a verification of the internal organs position and a possibility to adjust the patient position. However, organs position like bladder and rectum can differ from the initial position due to a filling difference between initial and current position. De Crevoisier et al showed evidence that rectal distension on the CT scan decreased the probability of biochemical control, local control as well as the rectal toxicity in patients who were treated with radiotherapy for a prostate cancer (6).

Some pieces of advice are given to the patient to help them in the management of organs filling. Unfortunately, despite this, a pilot retrospective study carried out in Léon Bérard Center in Lyon (France) showed a need to take action including laxative or gas removal, for an average of 25% of the radiotherapy sessions by patient. These results could be explained by the patient's age and the sedentariness.

In the literature, two randomised study found and reported an impact of nutritional intervention including a diet on the reproducibility with the presence of stool or gas and a variability of rectal volume significantly decreased. However, these studies included a small sample of patients and a prescription of laxative for each treatment session (7,8). Smithsmans et al added adapted physical activity in their recommendations.

1/ The emergence of the idea

In 2018, after the highlighting of the issue and the review of the literature, the dietician team and some radiation therapists decided to develop a research program to evaluate a therapeutic education in dietetic and adapted physical activity for patients treated with radiotherapy for prostate cancer.

Few months were needed to develop the therapeutic education programs with dietician and instructor of adapted physical activity. Two workshops, of 1,5 hour each were created. The objectives of these workshops are:

- Learn to adapt their hydration and know the landmarks of the drinks' consumption
- Know the landmarks of the vegetables and fruits' consumption
- Learn the food which caused gas and bloat
- Identify and define what is adapted physical activity
- Know the general recommendations in physical activity during and after cancer
- Know the benefit of a regular practice of physical activity
- Adapt his physical activity during the treatment.

In addition to these workshops, some objectives were set with the patient and a call every 2 weeks was performed during the treatment to adjust advice and objectives.

Then, few months were required to educate everybody in the scientific approach. For the majority of the interdisciplinary team, this was the first experience in the writing of a research project which was necessary to evaluate the impact of the education program on the rectal volume and therefore its interest

2/ The project

For the evaluation of the interest and the consequence of this therapeutic education program, a research protocol was written, ETADAPT (Education Thérapeutique en Activité physique aDAptée et diététique sur la reproductibilité des séances de radiothérapie pour les cancers de la Prostate). The main objective of this study is to compare the impact of the therapeutic education in dietetic and adapted physical activity on the decrease of the intervention number on the rectal volume to improve the patient positioning reproducibility during prostate radiotherapy treatment. The main endpoint is the intervention number like laxative or gas removal for each patient collected by radiation therapist during the treatment.

This study is a multicentric prospective randomised study which was submitted to a national grant that was obtained at the end of 2019. Patients have been randomised between one of two following groups:

- Control group: only written recommendations are given to the patient by radiation oncologist before the beginning of the treatment
- Experimental group: written recommendations and the two therapeutic education workshops were performed before the beginning of the treatment.

3/The current state and the perspectives

Unfortunately, the COVID crisis complicated the implementation of the study which was opened in Léon Bérard Center in June 2021. Since then, 2 radiotherapy departments have opened the study for their patients in Grenoble and Rennes and two others are currently in progress. Only half of the patients' sample have included for now.

The main difficulties to open this study are:

- the human resource with the presence of an instructor in adapted physical activity in the hospital
- the organisation of the workshops which have to be performed before the beginning of the treatment.

In the initial calendar, we had expected to finish the inclusions in June 2021 to analyse the results in December 2021 and to publish in May 2022, but as one of the first experiences in research for dieticians and radiation therapists, respecting the calendar has not been possible.

Conclusion:

Research and scientific approach allow to develop knowledge and improve patient care which is crucial, in particular in radiation therapy. The issue of rectal filling for radiation therapy is well established and has a lot of consequences. The interdisciplinary approach with the knowledge of several disciplines could also lead to more relevant research and care. ETADAPT is our first research program which is supported by findings in Léon Bérard Center on this topic but we can expect that it will be not the last. With more experience in research, the team will be able to continue their research and find a solution!



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