"What Happens When Someone's Challenge Becomes Everybody's Challenge"

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Annual AAPM 2019

San Antonio TX

Conflict of interest

Speaker for ELEKTA

Learning objectives

- Understand the value of team effort in the world of radiation therapy
- Be familiar with the "playbook concept"
- Discuss the global approach in medical events solutions

AAPM 2019 Annual meeting: Welcome message from AAPM President Cynthia McCollough

"The theme for the meeting is "Building Bridges, Cultivating Safety, Growing Value." Come and build lasting partnerships with colleagues and vendors, learn how to cultivate a safety culture, and increase your value to those you work with and to the patients we serve".

Facts

- As humans, we all make mistakes (Please raise both hands if you don't)
- Physicists are good in analyzing errors
- We all can come up with different but good solutions
- With our busy schedule, we might not have time to think of solutions for ME that are not ours (or be part of a "playbook").
- However we might react when reading about a ME: "How can such a thing still happen"?

New concept (Sort of): "The playbook"

- In sports every coach has a playbook for every game: has tools to guide him for a win (Do good) and avoid mistakes
- In brachytherapy: every team should have a playbook on how to do well (correct way) and avoid ME's (Different from how to do a procedure)
- Playbook in sport is created by players, assistant coaches, coaches etc.
- Playbook in radiation therapy (Brachytherapy) is done by a team of medical physicists, radiation Oncologists, and manufacturer representatives willing to provide ideas on corrective/preventive actions on ME.

What happens when a ME occurs?

- Department team will gather and discuss the "who", "when", "why", "how", and the "***now***".
- Can we do better by making that group even larger with people from different institutions, with fresh eyes, and a different approach?

Advantages of the "outside world"

- Small world (Institution) plus the outside world (Other brachytherapy experts): unlimited amount of knowledge and ideas =>better solutions
- Different setting, new space, tons of ideas, event looked at by different people in a different way, free from negativity and fear, not limited by the institution comfort zone, people connecting together and thinking outside the box =>will create new and better ideas
- People not involved with the case have a better state of mind in analyzing and providing many good practical corrective and preventive solutions.
- "*If there is a problem within the mind (Pre-occupied, concerned, has some fear, distracted, exhausted…) how can a mind solves when itself is a problem"?* (Thread from physics forums).

The brachytherapy project

- Reported medical errors (Common or severe) are selected from regulatory or reporting systems.
- Case (As reported) is sent to ABS members and representative from the manufacturing industry* to provide feedback and accuracy on the case, corrective actions, preventive actions.
- Institution name, individuals names, etc. are removed from the case
- Focus:
  - a) First we try to understand the case then look at the "when", "what", "how" and not on who did it. All about the process.
  - b) Second we look at corrective and preventive actions; check with manufacturer for any helpful documentation, clarification, and feedback
  - c) Feedback and solutions are tabulated and sent back to all reviewers for additional comments and approval
  - d) Final clean summary sent to all members (Only constructive criticism is allowed).

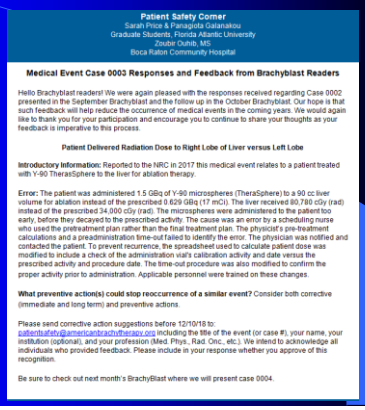
Challenges

- ME report information might not be clear or accurate
- Information lacking some valuable details
- Unless information is complete, difficult to provide applicable corrective/preventive actions

Status of the project

- Five cases have been discussed so far: total length, catheter reconstruction (2), activity error, and source (eBT) calibration errors.
- One case per month is presented
- Feedback is sent to: PreventMedEvent@gmail.com
  (Soon to be PreventMedEvent@ABS.org)
- Cases are published in the ABS BrachyBlast newsletter

Example: Case 0003



Patient Safety Corner
Sarah Price & Panagiota Galanakou
Graduate Students, Florida Atlantic University
Zoubir Ouhib, MS
Boca Raton Community Hospital

Medical Event Case 0003 Responses and Feedback from Brachyblast Readers

Hello Brachyblast readers! We were again pleased with the responses received regarding Case 0002 presented in the September Brachyblast and the follow up in the October Brachyblast. Our hope is that such feedback will help reduce the occurrence of medical events in the coming years. We would again like to thank you for your participation and encourage you to continue to share your thoughts as your feedback is imperative to this process.

Patient Delivered Radiation Dose to Right Lobe of Liver versus Left Lobe

Introductory Information: Reported to the NRC in 2017 this medical event relates to a patient treated with Y-90 TheraSphere to the liver for ablation therapy.

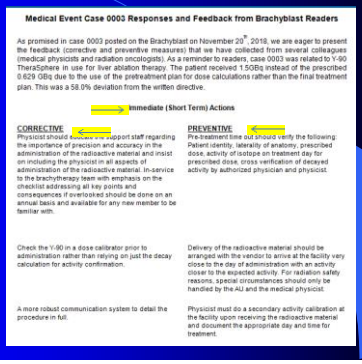
Error: The patient was administered 1.5 GBq of Y-90 microspheres (TheraSphere) to a 90 cc liver volume for ablation instead of the prescribed 0.629 GBq (17 mCi). The liver received 80,780 cGy (rad) instead of the prescribed 34,000 cGy (rad). The microspheres were administered to the patient too early, before they decayed to the prescribed activity. The cause was an error by a scheduling nurse who used the pretreatment plan rather than the final treatment plan. The physicist's pre-treatment calculations and a preadministration time-out failed to identify the error. The physician was notified and contacted the patient. To prevent recurrence, the spreadsheet used to calculate patient dose was modified to include a check of the administration vial's calibration activity and date versus the prescribed activity and procedure date. The time-out procedure was also modified to confirm the proper activity prior to administration. Applicable personnel were trained on these changes.

What preventive action(s) could stop reoccurrence of a similar event? Consider both corrective (immediate and long term) and preventive actions.

Please send corrective action suggestions before 12/10/18 to: patientsafety@americanbrachytherapy.org including the title of the event (or case #), your name, your institution (optional), and your profession (Med. Phys., Rad. Onc., etc.). We intend to acknowledge all individuals who provided feedback. Please include in your response whether you approve of this recognition.

Be sure to check out next month's BrachyBlast where we will present case 0004.

Immediate actions



Medical Event Case 0003 Responses and Feedback from Brachyblast Readers

As promised in case 0003 posted on the Brachyblast on November 20th, 2018, we are eager to present the feedback (corrective and preventive measures) that we have collected from several colleagues (medical physicists and radiation oncologists). As a reminder to readers, case 0003 was related to Y-90 TheraSphere in use for liver ablation therapy. The patient received 1.5GBq instead of the prescribed 0.629 GBq due to the use of the pretreatment plan for dose calculations rather than the final treatment plan. This was a 58.0% deviation from the written directive.

Immediate (Short Term) Actions

CORRECTIVE

Physicist should educate the support staff regarding the importance of precision and accuracy in the administration of the radioactive material and insist on including the physicist in all aspects of administration of the radioactive material. In-service to the brachytherapy team with emphasis on the checklist addressing all key points and consequences if overlooked should be done on an annual basis and available for any new member to be familiar with.

Check the Y-90 in a dose calibrator prior to administration rather than relying on just the decay calculation for activity confirmation.

A more robust communication system to detail the procedure in full.

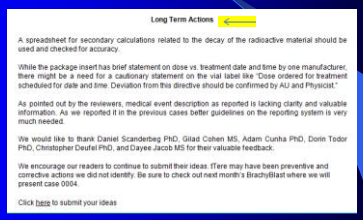
PREVENTIVE

Pre-treatment time out should verify the following: Patient identity, laterality of anatomy, prescribed dose, activity of isotope on treatment day for prescribed dose, cross verification of decayed activity by authorized physician and physicist.

Delivery of the radioactive material should be arranged with the vendor to arrive at the facility very close to the day of administration with an activity closer to the expected activity. For radiation safety reasons, special circumstances should only be handled by the AU and the medical physicist.

Physicist must do a secondary activity calibration at the facility upon receiving the radioactive material and document the appropriate day and time for treatment.

Long Term actions



Long Term Actions

A spreadsheet for secondary calculations related to the decay of the radioactive material should be used and checked for accuracy.

While the package insert has brief statement on dose vs. treatment date and time by one manufacturer, there might be a need for a cautionary statement on the vial label like "Dose ordered for treatment scheduled for date and time. Deviation from this directive should be confirmed by AU and Physicist."

As pointed out by the reviewers, medical event description as reported is lacking clarity and valuable information. As we reported it in the previous cases better guidelines on the reporting system is very much needed.

We would like to thank Daniel Scanderbeg PhD, Gilad Cohen MS, Adam Cunha PhD, Dorin Todor PhD, Christopher Deufel PhD, and Dayee Jacob MS for their valuable feedback.

We encourage our readers to continue to submit their ideas. tThere may have been preventive and corrective actions we did not identify. Be sure to check out next month's BrachyBlast where we will present case 0004.

Click here to submit your ideas

What Happens When Someone's Challenge Becomes Everybody's Challenge ?

- We all learned from each other that could help us prevent a similar ME (Or perhaps a different one).
- Valuable dialogue among people to brainstorm and be creative for practical solutions in a collegiate environment
- Engage manufacturers in the discussion and as a team look into preventive/corrective actions (Product/software development and improvement)
- Alert regulators/AU on the need of an accurate reporting (details, accuracy, etc.) for applicable and better solutions
- Create a playbook for everyone to adopt for a safer/better patient outcome

What Happens When Someone's Challenge Becomes Everybody's Challenge (Cont'd)

- Build bridges: partnership with colleagues, vendors, and regulators
- Cultivate the safety culture
- Aim for better outcome for our patients

Conclusion

- Medical events are not going away
- It is up to all of us to reduce them and make them inconsequential if they were to occur
- More participation by all (Radiation Oncology team, manufacturers, and regulators) will improve the reliability of the proposed solutions
- When someone's challenge becomes everybody's challenge =>patients will benefit!

When you hand good people possibility, they do great things.

Biz Stone