

# Advances in Radiation Oncology

## Comments on the publication by Yerramilli et al titled "Palliative Radiotherapy for Oncologic emergencies in the setting of COVID-19: Approaches to Balancing Risks and Benefits."

--Manuscript Draft--

<b>Manuscript Number:</b>	ADVANCESRADONC-D-20-00115
<b>Article Type:</b>	Letter to the Editor
<b>Section/Category:</b>	COVID-19
<b>Corresponding Author:</b>	Aisling Barry, MD Princess Margaret Hospital Cancer Centre Toronto, ON CANADA
<b>First Author:</b>	Aisling Barry, MD
<b>Order of Authors:</b>	Aisling Barry, MD Ezra Hahn Laura dawson Rebecca Wong Padraig Warde Jolie Ringash Bernard Cummings Barbara-Ann Millar Jonathan Livergant
<b>Abstract:</b>	

## **Title**

Comments on the publication by Yerramilli et al titled “Palliative Radiotherapy for Oncologic emergencies in the setting of COVID-19: Approaches to Balancing Risks and Benefits.”

## **Authors**

Ezra Hahn<sup>1</sup>, Jonathan Livergant<sup>2</sup>, Barbara-Ann Millar<sup>1</sup>, Jolie Ringash<sup>1</sup>, Rebecca Wong<sup>1</sup>, Laura A. Dawson<sup>1</sup>, Padraig Warde<sup>1</sup>, Bernard Cummings<sup>1</sup>, Aisling Barry<sup>1</sup>

1. Department of Radiation Oncology, Princess Margaret Cancer Centre, University of Toronto, Toronto, ON, Canada
2. Division of Radiation Oncology, University of British Columbia and BC Cancer, Victoria, BC, Canada.

## **Corresponding author**

Aisling Barry

## **Conflicts of interest**

The authors have no conflicts of interest to disclose.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

To the Editors,

This timely paper provides guidance on short course palliative radiotherapy (RT) for common indications (e.g. brain metastases, cord compression, tumor bleeding, airway obstruction, and bone metastases) during the COVID-19 pandemic<sup>1</sup>. The increased risk of cancer patients contracting COVID-19 infection and their higher risk of morbidity and mortality are strong motivators for using the shortest most effective palliative RT regimens<sup>1,2</sup>.

We recommend 8-Gy single fraction RT as the first choice to palliate tumor bleeding during COVID-19. Yerramilli et al recommend against 10 Gy in 1 fraction due to late gastrointestinal (GI) toxicity, and recommend 4 Gy x5 or 3.7 Gy x4 twice daily. Onsrud et al observed late GI toxicity in patients with bleeding gynecological malignancies treated with two or three 10 Gy fractions; however, no late GI toxicity was observed following a single 10 Gy fraction<sup>3</sup>. Other studies have reported bleeding control rates approaching 90% in multiple disease sites including GI, gynecological, genitourinary, head and neck, extremity and lung cancer following a single fraction of 8 Gy<sup>4,5,6</sup>. A single 8 Gy is also widely adopted in some countries, including Canada and the Netherlands, as the preferred approach to palliate bleeding tumors in the pre-COVID-19 era<sup>7</sup>.

Another versatile palliative RT schedule is the 0-7-21 regimen, in which a single fraction of 6 or 8 Gy is delivered on day 0, day 7, and a third time two weeks later if needed, however ensuring the final fraction is off-cord and brainstem to reduce toxicity risk. This protocol has been studied in multiple contexts and is effective for both symptom palliation and local tumor control<sup>8,9,10</sup>. In head and neck cancers, Ngyuen et al found symptom response in over 80% of patients with 31% having a complete clinical response<sup>8</sup>. Similar responses were reported in gynecologic cancers and nodular melanoma<sup>9,10</sup>. A frequent strategy using 0-7-21 is to reassess the patient prior to each fraction; symptoms are often adequately palliated following one or two 8 Gy fractions. 0-7-21 allows for shared decision-making with the patient, assessment of response to guide decision making, reduced visits, and a chance for sustained safe, local control, as long as tolerances to organs at risk are respected. In the COVID-19 era, this schedule also allows flexibility regarding treatment days, and ensures that a higher biologically effective dose has been delivered if the course needs to be stopped early (compared to one or two fractions of other palliative regimens).

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

## References

1. Yerramilli D, Xu A, Gillespie E, et al. Palliative Radiotherapy for Oncologic Emergencies in the setting of COVID-19: Approaches to Balancing Risks and Benefits. *Adv Radiat Onc.* 2020 April. Accepted for publication.
2. Liang W, Guan W, Chen R, Wang W, Li J, Xu K, Li C, Ai Q, Lu W, Liang H, Li S, He J. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *Lancet Oncol.* 2020 Mar;21(3):335-337. doi: 10.1016/S1470-2045(20)30096-6.
3. Onsrud M, Hagen B, Strickert T. 10-Gy single-fraction pelvic irradiation for palliation and life prolongation in patients with cancer of the cervix and corpus uteri. *Gynecol Oncol.* 2001 Jul;82(1):167-71.
4. Chaw CL, Niblock PG, Chaw CS, Adamson DJ. The role of palliative radiotherapy for haemostasis in unresectable gastric cancer: a single-institution experience. *Ecancermedalscience.* 2014 Jan 10;8:384. doi: 10.3332/ecancer.2014.384.eCollection 2014.
5. Tey J, Soon YY, Cheo T, Ooi KH, Ho F, Vellayappan B, Chia D, Tai BC. Efficacy of Palliative Bladder Radiotherapy for Hematuria in Advanced Bladder Cancer Using Contemporary Radiotherapy Techniques. *In Vivo.* 2019 Nov-Dec;33(6):2161-2167. doi:10.21873/invivo.11718.
6. Sapienza LG, Ning MS, Jhingran A, Lin LL, Leão CR, da Silva BB, Pellizzon ACA, Gomes MJL, Baiocchi G. Short-course palliative radiation therapy leads to excellent bleeding control: A single centre retrospective study. *Clin Transl Radiat Oncol.* 2018 Nov 22;14:40-46. doi:10.1016/j.ctro.2018.11.007.
7. Strijbos J, van der Linden YM, Vos-Westerman H, van Baardwijk A; Dutch Platform Palliation, Radiotherapy. Patterns of practice in palliative radiotherapy for bleeding tumours in the Netherlands; a survey study among radiation oncologists. *Clin Transl Radiat Oncol.* 2019 Jan 11;15:70-75. doi: 10.1016/j.ctro.2019.01.004.
8. Nguyen NT, Doerwald-Munoz L, Zhang H, Kim DH, Sagar S, Wright JR, Hodson DI. 0-7-21 hypofractionated palliative radiotherapy: an effective treatment for advanced head and neck cancers. *Br J Radiol.* 2015 May;88(1049):20140646. doi: 10.1259/bjr.20140646.
9. Yan J, Milosevic M, Fyles A, Manchul L, Kelly V, Levin W. A hypofractionated radiotherapy regimen (0-7-21) for advanced gynaecological cancer patients. *Clin Oncol (R Coll Radiol).* 2011 Sep;23(7):476-81. doi: 10.1016/j.clon.2011.01.001.
10. Johanson CR, Harwood AR, Cummings BJ, Quirt I. 0-7-21 radiotherapy in nodular melanoma. *Cancer.* 1983 Jan 15;51(2):226-32. PubMed PMID: 6185198.