

Hospital in Lusaka, Zambia (CDH), an international virtual clinical research course for clinical oncology fellows at CDH was piloted in Fall 2020 to address a significant need for a structured clinical research curriculum.

Materials/Methods: The virtual clinical research course took place from August to November 2020 and involved 14 weekly hour-long lectures (13 by MDA faculty, one by CDH faculty) on topics including identifying a research question, study design, clinical trials, research ethics, biostatistics, and scientific writing. The course was attended by 15 clinical oncology fellows. Eight senior fellows were paired with a longitudinal MDA and CDH faculty member and MDA resident/fellow mentor in their area of interest to support a research protocol. Anonymized pre- and post-course surveys were administered with 5-point Likert scale academic self-efficacy inventories and open-ended qualitative questions. Descriptive statistics were used to summarize the findings.

Results: A total of 12/15 participants (80%) completed the pre-course survey and 11/15 (73%) completed the post-course survey. Average scores pre- and post-course, respectively, for research interest and motivation (5.0, 4.9), comfort reading and evaluating medical literature (3.7, 4.5), developing a study question and design (2.8, 4.0), collecting and managing data (3.3, 4.0), independently performing and publishing research (2.3, 3.7), and satisfaction with mentorship and profession (3.0, 4.2) demonstrated an increase across multiple domains. As of December 2020, there were eight active research proposals led by CDH clinical oncology fellows and there had been 21 meetings and 27 hours of MDA-CDH mentorship time. Positive themes from open-ended feedback included clear lectures, meaningful relationships with mentors, and utility of presenting research proposals for feedback while constructive themes included desire for more teaching on statistical analysis and incorporation of self-assessment modules.

Conclusion: Clinical research is essential to develop effective, evidence-based interventions to the unique cancer care challenges that occur in LMICs. The results from the pilot virtual MDA-CDH research course, which led to improvements in academic self-efficacy scores, support for research proposals led by CDH clinical oncology fellows, and formation of longitudinal mentorship groups demonstrate the feasibility of conducting a virtual longitudinal research workshop model. Continued collaboration and future follow-up will be needed to demonstrate effectiveness and impact.

Author Disclosure: K. Diao: None. D. Lombe: None. J. Wu: None. C. Mwaba: None. R.S. Tidwell: None. T.A. Yap: Research Grant; Artios, AstraZeneca, Bayer, Clovis, Constellation, Cyteir, Eli Lilly, EMD Serono, Forbuis, F-Star, GlaxoSmithKline, Genentech, ImmuneSensor, Ipsen, Jounce, Karyopharm, Kyowa, Merck, Novartis, Pfizer, Ribon Therapeutics, Regeneron, Repare, Sanofi, Scholar, Consultant; Almac, Aduro, AstraZeneca, Atrin, Axiom, Bayer, Bristol. M.S. Chambers: None. J. Taylor: None. G.J. McGinnis: None. A. Jhingran: American Board of Radiology. L.E. Court: None. G.L. Smith: Research Grant; NIH, Radiation Oncology Institute. Royalty; Oncora. Patent/License Fees/Copyright; Oncora; ASTRO. E. Chiao: In-kind Donation; Qiagen, Aptima; National Cancer Institute. Scientific Working Group Chair; AIDS Malignancy Consortium. C.A. Cameron: None. S. Msadabwe-Chikuni: None. L.L. Lin: Employee; VA Hospital. Research Grant; AstraZeneca. Travel Expenses; AstraZeneca.

2709

Late Toxicity Outcomes of the NHS Proton Overseas Program Since 2008

E.J. Hwang,^{1,2} S. Gaito,³ A.K. France,³ A. Crellin,⁴ D. Thwaites,^{2,5} V. Ahern,^{6,7} D.J. Indelicato,⁸ and E. Smith^{1,3}; ¹The Christie Proton Beam Therapy Centre, Manchester, United Kingdom, ²University of Sydney, Institute of Medical physics, Sydney, Australia, ³The Christie NHS Foundation Trust, Proton Clinical Outcomes Unit, Manchester, United Kingdom, ⁴NHS England, London, United Kingdom, ⁵Leeds University, medical physics, Leeds Institute of Cancer and Pathology, Leeds, United Kingdom,

⁶Department of Radiation Oncology, The Crown Princess Mary Cancer Centre, Westmead, Sydney, Australia, ⁷Sydney Medical School, The University of Sydney, Australia, Sydney, Australia, ⁸Department of Radiation Oncology, University of Florida College of Medicine, Jacksonville, FL

Purpose/Objective(s): The Proton Overseas Program (POP) was begun by the National Health Service (NHS) in England in 2008, to fund eligible patients, including from the rest of the United Kingdom, for proton beam therapy (PBT) abroad. The first NHS PBT center was set up in 2018 and all POP patients' data were transferred to its central repository for tracking and analysis. Outcomes are reported for POP patients diagnosed with non-neuroaxial tumors treated from 2008 to 2020.

Materials/Methods: Each patient's data are stored in the center's Proton Clinical Outcomes database. Clinical follow-up correspondence, last follow-up date, survival data, etc. are continuously updated when received. All non-neuroaxial tumors as of 2nd March 2020 were retrieved. Each patient's information from follow-up letters, assessment forms, etc. was reviewed, for incidence, type and onset time of grade 3-5 toxicities. CTCAE version 4 was used for toxicity nomenclature and grading. If needed, a patient's local UK follow-up center was contacted, sending individualized forms to record the most recent outcomes data.

Results: 495 patients met the eligibility criteria, with median follow-up 2.1 years (range 0-9.3 years), of which 89% were treated at the University of Florida (68%) and the Oklahoma Procure Center (21%). 70% of patients were pediatric (< 16 years), median age 11 (0-69 years). The most common diagnoses were rhabdomyosarcoma (RMS) (43%) and Ewing sarcoma (34%). The main disease site was the Head & Neck (H&N) region (51%). 69 patients had died by March 2020 (13.9%), with the highest risk in spindle cell carcinoma (60% mortality), osteosarcoma (38%) and neural/vascular tumors (25%). The 2-year actuarial survival was 88.3%. Patients with < 90 days follow-up (n=26) or with insufficient toxicity data (n=33) were excluded, leaving 436 patients for analysis. Following multimodality therapy, 55 patients (13%) had at least one grade 3 toxicity, 7 patients (1.6%) at least one grade 4, and none with grade 5. Most grade 3 (64%) and all grade 4 occurred in the H&N region, and most were for RMS patients (62%, N=34 and 71%, N=5 respectively). The most common grade 3 toxicity was cataract (51%, N=18), then musculoskeletal deformity (11%, N=6), premature menopause (11%, N=6) and hearing impairment (7%, N=4). Half of the grade 4 toxicities were secondary to hearing impairment. Median time from treatment end to onset was 2.3 years for grade 3 and 5 years for grade 4.

Conclusion: This study provides a large well-defined cohort of patients diagnosed with uncommon non-neuroaxial tumors undergoing multimodality therapy including PBT. The NHS approach to vigilant collection and tracking of patient data over time is feasible and provides valuable analysis of PBT patient outcomes. Despite difficulties with international patient transfer, this preliminary data suggests acceptable survival and toxicity rates in the POP cohort.

Author Disclosure: E. Hwang: None. S. Gaito: None. A.K. France: Employee; Intelesant Limited. A. Crellin: None. D. Thwaites: None. V. Ahern: Stock; Commonwealth Serum Laboratories. Bringing together a group of experts to develop a Business Case for a Particle Therapy Centre in NSW, Australia; National Particle Treatment and Research Centre, Westmead Precinct, NSW, Australia. D.J. Indelicato: None. E. Smith: None.

2710

The Clinical Utilization of Radiation Therapy in Korea between 2013 and 2018

W.I. Jang,¹ E. Kim,¹ M.S. Kim,¹ H. Kim,² and J.S. Yoon³; ¹Department of Radiation Oncology, Korea Institute of Radiological and Medical Sciences, Seoul, Korea, Republic of South Korea, ²Korea Institute of Radiological and Medical Sciences, Seoul, Korea, Republic of South Korea, ³Korea University, Seoul, Korea, Republic of South Korea