

## ESMO Clinical Unit Visit Report

### National Center for Oncological Hadrontherapy (CNAO)

2<sup>nd</sup> Feb, 2018 -18, Mar, 2018

#### Clinical Unit Visit at Particle theraQY. center

**Fellow:** Bhaswanth Dhanireddy  
*(University of Kentucky Medical Center, USA)*

**Mentor(s):** Francesca Valvo, CNAO  
Medical Director CNAO, Pavia, Italy

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I am a resident of Radiation Oncology in my fourth year of training. During my years of training, I was fortunate in gaining experience in different kinds of radiation modalities like 3D conformal radiotherapy, Intensity modulated radiotherapy, Image-guided radiotherapy, Stereotactic Body radiation therapy and Stereotactic radiosurgery. I understood about the importance of Proton therapy in improving the radiation dose delivery along with limiting normal tissue toxicity. I also learnt theoretically that Carbon Ion Radiotherapy would be very helpful in treating radio-resistant tumours. So to gain clinical and practical experience in Proton and Carbon Ion radiotherapy, I contacted Dr. Francesca Valvo, medical director of national oncological center of hadron therapy, Pavia Italy. Dr. Valvo kindly accepted me for a clinical unit visit under her mentorship. My primary aim was to understand clinical, physical and biological properties of Proton and Carbon Ion radiotherapy and to learn safe, effective and appropriate use of hadrontherapy for the treatment of cancer. My secondary aim is to complete a research project related to hadron therapy.

In first few days I spent time understanding the patient pathways and working culture at CNAO. Then I participated in clinical case discussion in the multidisciplinary tumour board every Monday. We discussed several different cancer pathologies and feasibility of treatment according to hadrontherapy criteria. We also discussed follow up results of clinical visits from the previous week Every day I participated in the CT simulation and treatment planning with Dr. Barbara Vischioni and Dr. Maria Rosaria Fiore. I participated in delineation of radiation target volumes on planning CT images of chordomas, Ocular melanomas, adenoid cystic carcinomas of head and neck and Malignant peripheral nerve sheath tumours.

Initially my research project was decided to be on pancreatic cancers. But upon suggestion of my mentors Dr. Valvo and Dr. Vischioni I started data collection of patients who received re-radiation with Carbon Ions for recurrent salivary gland tumours. Along with Dr. Cesare Severo, visiting trainee from South Italy, medical records of all patients with recurrent salivary glands were reviewed and database was prepared. In the last two weeks I completed statistical data analysis and prepared an abstract. On March 14<sup>th</sup> I presented my findings to the department. My mentor Dr. Barbara Vischioni submitted the abstract to Association of Italian Society of Radiation Oncology (AIRO) annual meeting. I have completed Introduction, methods and results section of the manuscript. Currently I am working discussion part of the manuscript.

I really feel fortunate about the learning and research experiences I have got at my visit in CNAO Italy. I appreciated the clinical effectiveness of high LET radiation with Carbon Ion in the management of certain cancers. I sincerely thank ESMO and my mentors at CNAO very much for giving such a valuable learning experience. I also express my sincerely gratitude for Ms. Christina Bono for coordinating my visit.



*09/20/2018, Lexington*

*Bhaswanth Dhanireddy*

*Dr. Francesca Valvo*

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