Assessing Safety and Tolerability of Volumetric-Modulated Arc Therapy (VMAT), or RapidArc radiation therapy for the treatment of skin cancers and inflammatory skin conditions.

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Abstract

Rationale

Volumetric-Modulated Arc Therapy (VMAT), or RapidArc is a treatment method commonly used by radiation oncologists to treat multifocal malignant diseases in organs such as prostate, lungs and brain[1].

There is a recent interest in the use of this therapy in dermatological conditions. Dermatologists have avoided using radiotherapy to treat skin cancers due to the negative effects that traditional radiation treatments had on the patient's skin including side effects of: limited tissue preservation, scaring and acute radiation.

Patients with a large number of individual cancers within a region or field cancerization are problematic. The current field therapy approaches (photo dynamic therapy, imiquimod, ingenol mebutate, and 5 fluorouracil) are effective for solar keratosis and superficial basal cell carcinomas (BCCs) however, where there are invasive squamous cell carcinomas (SCCs) or nodular BCCs in an area of field cancerization, long term clearance results are poor[2,3].

This study aims assess the safety and tolerability of VMAT to treat pre-malignant and malignant tumours in regional areas such as upper limbs, lower limbs, torso or scalp.

Method

The National Dermatology Radiation Oncology Registry (**NDROR**) is a human research registry that collects and collates information from patients referred for radiotherapy for the management of non-melanoma and melanoma skin cancer. The collected data includes: demographics, medical history, treatment schedule, treatment outcomes, and follow-up of patients undergoing radiotherapy. At the time of submission, 42 patients have received VMAT for multifocal regional disease with final results still to be assessed.

Significance

The outcomes of this study confirms that the use of VMAT therapy is an effective and preferable treatment option for multifocal regional diseases. A board spectrum of pathologies including SCCs and nodular BCCs achieve clearance. This therapy is a significant advantage to the patient who would otherwise have to undergo a combination of modalities to achieve clearance outcomes.

Recent Publications (minimum 5)

1. Zhang, P., Happersett, L., Hunt, M., Jackson, A. Zelefsky, M., Mageras, G., (2010). Volumetric Modulated Arc Therapy: Planning and Evaluation for Prostate Cancer Cases. International Journal of Radiation Oncology*Biology*Physics Volume 76 (5). P.1456–1462.
2. Siller, G., Rosen, R., Freeman, M., Welburn, P., Katsamas, J. and Ogbourne, S. M. (2010), PEP005 (ingenol mebutate) gel for the topical treatment of superficial basal cell carcinoma: Results of a randomized phase IIa trial. Australasian Journal of Dermatology, 51: 99–105. doi:10.1111/j.1440-0960.2010.00626.x
3. Love, E., Bernhard, J. Bordeaux, J., (2009). Topical Imiquimod or Fluorouracil Therapy for Basal and Squamous Cell Carcinoma A Systematic Review. Arch Dermatol. 2009;145(12):1431-1438. doi:10.1001/archdermatol.2009.291

Dr. Lynda Spelman is the Principal Investigator of Veracity Clinical Research. As a graduate of the University of Queensland and Fellow of the Australasian College of Dermatologists, she has worked as a specialist dermatologist in Australia for more than 20 years.Dr Spelman has an extensive 25 year history of involvement in clinical research, having conducted studies in trials for a wide range of dermatological conditions, including atopic dermatitis/eczema, chronic plaque psoriasis, psoriatic nail disease, palmoplantar psoriasis, hidradenitis suppuritiva, seborrheic keratosis, and superficial and nodular basal cell carcinoma.

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