Comments on: “Clinical implementation of a new electronic brachytherapy system for skin brachytherapy”
Antonio Pontoriero, MD, Giuseppe Iatì, MD, Stefano Pergolizzi, MD
Department of Biomedical Sciences and Morphological and Functional Images, University of Messina, Italy

J Contemp Brachytherapy 2015; 7, 4: 319
DOI: 10.5114/jcb.2015.53990

To the Editor:

We have read with an interest the article of Olga Pons-Llanas et al. [1] published in the Journal about the use of electronic brachytherapy (EBT) in non-melanoma skin cancer (NMSC). However, we noticed the exclusion criteria for the following tumors: lesions with a diameter greater than 20 mm, invasion of more than 4 mm, irregular anatomic areas. Besides, there are limits linked to the use of circular collimators and the daily set-up position. NMSC often have irregular shapes and diameter longer than 2 cm; besides, in most cases, NMSC are recurrent and located in periorbital area (i.e. inner canthus). In these instances, both EBT and brachytherapy are difficult and/or inadequate to treat safely most of patients. Among the new technologies, stereotactic ablative radiation therapy could be a valid therapeutic option treating “difficult NMSC”.

In a recent paper [2], we reported our experience with Stereotactic Body Radiation Therapy (SBRT) in a patient with recurrent and complicated NMSC using Cyberknife System (CKS). In fact, the CKS is a possible alternative to surgery and brachytherapy in patients with recurrent NMSC located in irregular anatomical areas close to critical organs (i.e. eyes). The SBRT with image guided exceeds the limits of the set-up for relocation; the inverse planning allows to cover irregular volumes greater than 20 mm. The use of the photons X-6 MV permits to treat the lesions with invasion more than 4 mm.

Do Olga Pons-Llanas et al. have experience and/or data on the use of brachytherapy in “difficult areas”? In fact, in daily clinical practice many patients have “irregular and difficult” NMSC and it is important that Radiation Oncologists have more therapeutic options in these instances. We think that it is important for the authors to comment on these issues and perhaps reply within the context of this journal.

References
1. Pons-Llanas O, Ballester-Sánchez R, Celada-Álvarez FJ et al. Clinical implementation of a new electronic brachytherapy system for skin brachytherapy. J Contemp Brachytherapy 2015; 6: 417-423.
2. Pontoriero A, Iatì G, Conti A et al. Treatment of periocular basal cell carcinoma using an advanced stereotactic device. Anticancer Res 2014; 34: 873-875.

Address for correspondence: Antonio Pontoriero, MD, Department of Biomedical Sciences and Morphological and Functional Images, University of Messina, Italy, A.O.U. “G. Martino” Via Consolare Valeria 98100 Messina, Italy, phone: +39 902217173, fax: +39 902213192, e-mail: apontoriero@unime.it

In reply to the Letter to the Editor titled:

“Comments on: Clinical implementation of a new electronic brachytherapy system for skin brachytherapy”

Olga Pons-Llanas, MD1, Rosa Ballester-Sánchez, MD2, Francisco Javier Celada-Álvarez, MD1, Cristian Candela-Juan, MD1, Teresa García-Martínez, MD3, Margarita Llavador-Ros, MD4, Rafael Botella-Estrada, MD, PhD5, Christopher A. Barker, MD5, Antonio Ballesta, MD6, Alejandro Tormo-Micó, MD1, Silvia Rodríguez, MD, PhD7, Jose Perez-Calatalaya, PhD1,7

1Radiotherapy Department, La Fe University and Polytechnic Hospital, Valencia, Spain, 2Dermatology Department, La Fe University and Polytechnic Hospital, Valencia, Spain, 3Radiotherapy Physics Department, La Ribera University Hospital, Valencia, Spain, 4Pathology Department, La Fe University and Polytechnic Hospital, Valencia, Spain, 5Department of Radiation Oncology, Memorial Sloan-Kettering Cancer Center, New York, USA, 6Radiology Department, La Fe University and Polytechnic Hospital, Valencia, Spain, 7Radiotherapy Department, Benidorm Hospital, Alicante, Spain

J Contemp Brachytherapy 2015; 7, 4: 319-320
DOI: 10.5114/jcb.2015.53991

To the Editor:

We have read with an interest the letter to the Editor titled “New technologies for non-melanoma skin cancer”. In this letter, the authors comment on our article [1] about the clinical implementation of a new system for skin brachytherapy (Esteya® electronic brachytherapy by Elekta, Stockholm, Sweden) and they asked for a reply to their letter. We would like to thank the authors for their interest in our publication and would like to respond to their letter.

First of all we need to clarify that in our study we chose to exclude irregularly shaped lesions, lesions with a diameter > 2 cm, and lesions with a depth larger than 4 mm because of the design of the radiation therapy system that was used. Lesions included in our work using...
the specific features of the Esteya® device, in fact represent the vast majority of non-melanoma skin cancer primary presentations.

The Esteya® electronic brachytherapy system (E-eBT) is delivered with a set of applicators up to 3 cm in diameter. When treating non-melanoma skin cancer, typically a margin of 0.5 cm is added to the GTV. Consequently, the maximum diameter of lesions to be treated is 2 cm. The system has a dose-gradient of about 8% per mm, therefore with lesions deeper than 0.4 cm, the overdose at the first skin layers will exceed 130% and this might impact cosmetic outcome. This is the reason we limited inclusion to lesions with a depth of 4 mm or less. Finally, E-eBT applicators are designed with a flat surface to allow full contact with the skin. Avoiding air gaps between applicator and skin is a prerequisite because of the significant impact of air gaps on the dose to the lesion. Nowadays, we have the possibility to use a new set of more precise applicators for treatment of lesions in difficult areas.

When we say that irregular areas are not suitable for EBT, we only mean those locations that, despite applying some pressure, are not entirely in contact with the applicator. These cases should be treated with other types of brachytherapy/radiotherapy. In our opinion, more robust research is needed to prove this technique as safe and beneficial when other therapies, such as interstitial brachytherapy with more substantial evidences are available.

That new sophisticated techniques such as “CyberKnife®”, as Dr. Pontoriero described in his letter - or particular radiation, as a proton beam therapy, etc., could be used in selected cases, complying properly the goals for treatment of theses tumors. But on the other hand, even when it is desirable, a good knowledge on the part of radiation oncologist specialist of the full potential of these new techniques is required. The cost and complexity of these techniques, together with the necessary investment in human resources to fit the goal of these treatments, as well as short follow up of every single case referred, become, at least in our opinion, the accurate approach as a non-elective treatment for non-melanoma skin cancer.

In our practice, this type of lesions on the inner canthus thus use to be treated with an HDR interstitial implant, with catheters just subcutaneous, and the eyes protected with a lead sheet. Although it is small invasive procedure, in our hospitals we prefer it to IMRT because of the robustness, simplicity, eye protection, dose gradient through normal tissue, and guarantee of full coverage of the lesion. In our group, we have accumulated over years a great experience treating successfully this kind of difficult tumors with this approach.

We want to express our gratitude to both the letter authors and the Journal Editor, to have the opportunity to include this discussion.

References
1. Pons-Llanas O, Ballester-Sanchez R, Celada-Alvarez FJ et al. Clinical implementation of a new brachytherapy system for skin brachytherapy. J Contemp Brachytherapy 2015; 6: 417-423.
2. Pontoriero A, Iati G, Conti A et al. Treatment of periorcicular basal cell carcinoma using an advanced stereotactic device. Anticancer Res 2014; 34: 873-875.

Address for correspondence: Olga Pons-Llanas, MD, Radiotherapy Department, La Fe University and Polytechnic Hospital, Valencia, Spain, Bulevar Sur s/n, 46026 Valencia, Spain, phone: +34 669355088, e-mail: olgapons73@hotmail.com