Treatment of Locally Advanced Basal Cell Carcinomas with Vismodegib

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INTRODUCTION: Basal cell carcinomas are the most common malignant skin tumors. Surgical treatment of locally advanced basal cell carcinomas can lead to mutilating surgeries for the patient. Vismodegib is a selective inhibitor of the Hedgehog pathway that leads to decreased tumor development.1,2,3,4,5

MATERIAL AND METHODS: Retrospective, descriptive studies conducted between November 2016 and August 2020 in which 11 patients with locally advanced basal cell carcinoma who completed treatment with Vismodegib (150 mg/day) were included. The female–male relationship was 4:7, and the average age was 70.81 years (57–83). The location of the tumor was: nine in head and neck and two in trunk. Of the total of 11 cases, seven were primary tumors and four recurrences. Treatment response was evaluated as: Complete Response, Partial Response, Progression, and Disease-Free Survival.

RESULTS: The average treatment time was 6.58 months (5–7 months). Complete Response was evidenced in six (54.5%) patients, Partial Response in four (36.4%) patients, and Progression in one (9.1%) patient. The Disease Free Survival rate was 27.25 months (5–24 months), showing a single relapse at 16 months post Complete Response. Grade I–II side effects were evidenced: alopecia in four (36.4%) patients, and cramps in four (36.4%) patients.

CONCLUSIONS: Our series represents the largest casuistic recorded to date by a Plastic Surgery Department in Latin America. Our analysis showed that Vismodegib enabled a consistent response in patients with locally advanced basal cell carcinomas, with adequate tumor response and disease control, while also significantly reducing the morbidity of surgical resection.

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Prediction of Time to Achieve Tissue Homeostasis Using Isogeometric Analysis

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PURPOSE: Tissue expansion is a common technique utilized to induce skin growth prior to definitive reconstruction of soft tissue defects. The relationship between stretch and growth in tissue expansion is yet to be fully elucidated. Here, we developed a computational model to predict the timing of conversion from elastic deformation to tissue expander-induced skin growth in a novel porcine model of tissue expansion.

METHODS: One-month-old female Yucatan minipigs received tattoos of 10 × 10 cm grids, and tissue expanders were implanted in subcutaneous planes below the grids. Expanders were inflated with one fill of 60 cm³ normal saline and the overlying skin was harvested after 24 hours, 7 days, and 14 days. 3D photographs were taken before and after expansion and sacrifice. Isogeometric analysis was performed using the 3D images to quantify the amount of total in vivo deformation attributed to expansion-induced growth. Expression of known mechanoresponsive genes (MMP9 and TNC) was evaluated at the apex, middle, and periphery of the expanders.

RESULTS: The ratio of deformation attributed to growth was greatest at the apex of the expander compared with the