



## **SAN RAFFAELE HOSPITAL**

### **VULNOLOGY CLINIC**

# PROTOCOL OF CARE FOR THE TREATMENT OF INJURED SKIN FROM CHEMOTHERAPY, RADIOTHERAPY AND GVHD POST-TRANSPLANT OF BONE MARROW IN HEMATOLOGICAL PATIENT

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## BACKGROUND AND AIMS

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Hematologic patients who need to receive an allogenic bone marrow transplant (BMT), need to undergo a chemotherapy treatment, and – as per agreed medical protocol – radiotherapy, resulting in a condition of aplasia. These treatments can cause skin rashes that may evolve into wounds. In addition, one of BMT complications is Graft versus Host Disease (GvHD) that involves various organs, in particular skin with spots and papule rashes, desquamation, and blisters similar to burns. Considering the evidence in the literature of the results of Hyaluronic Acid (HA) based treatment on burns and the efficacy of an HA gel<sup>1</sup> in other wounds caused by radiotherapy, we developed a protocol of care combining the use of this gel with a non-adhering silicone dressing<sup>2</sup> to treat skin GvHD and chemo/radiotherapy wounds in hematologic patients.

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## METHODS

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A sample of 17 adult patients was recruited, all post BMT (February to December 2015) who developed acute GvHD. Their wounds were treated twice a day applying HA gel, after rinsing with sterile water, and a non-adhering silicone dressing changed weekly.

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<sup>1</sup> Jalosome soothing gel™ Welcare

<sup>2</sup> Cuticell Contact™ BSN Medical

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## CURRENT PROTOCOL OF CARE

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Wound Care is an extremely dynamic and constantly evolving field. The quantity of new products presented every year is very wide: in fact, the increased well-being has lengthened the average life and, therefore, it is necessary to face the typical diseases of aging, often associated with well-off living conditions (but not only, also to the increase in poverty). The companies and professionals in the Wound Care field find themselves responding to the needs of an increasingly varied and diversified population affected by numerous pathological conditions. The hematological patient undergoing allogeneic BMT (bone marrow transplantation), is a young, immunocompromised patient. For pre-transplantation and cutaneous GvHD RT lesions, previously treated like burns, new formulations and new products have been developed.

Jalosome® is a patented gel with hyaluronic acid able to attract water from the deep layers of the skin to the surface, allowing an high and persistent hydration of the skin. This activity is synergistic to the action of the vesicular microstructures (liposomes) that carry the active ingredients under the stratum corneum (the outer layer of the skin), where they can be effective and perform their soothing action.

Active ingredients:

1. vesicular microstructures that convey the active ingredients in the deep layers of the skin
2. hyaluronic acid that protects the skin from the aggression of external elements maintaining the right degree of hydration
3. n-acylcarnitine and allantoin that foster tissue regeneration

In San Raffaele Vulnology Clinic, we started using this product on RT burns with rapid results both in terms of related pain reduction and in terms of skin regeneration.

Having very little literature with clear and unambiguous indications about the local treatment of pre-transplantation RT lesions and cutaneous GvHD and having had an extremely positive experience with other patients undergoing RT, we started using it also with the hematological patient. Starting from February 2015, seven patients were treated with this product with rapid results both in terms of reducing pain symptoms and decongestion of the skin and regeneration of the same. Five out of seven patients had cutaneous GvHD lesions, the remaining two were enrolled in a preventive treatment during pre-transplantation RT sessions. Patients who already had skin lesions progressively reduced redness and dryness typical of damaged skin, then progressively lost the no longer vital, superficial layer and regenerated an intact, rosy skin. Patients previously enrolled in the protocol with Jalosome® as subjected to RT, did not show any excoriation or injury, nor redness.

Specifically, the protocol is structured as follows:

- in case of injured or inflamed skin (or even to the appearance of pruritus), Jalosome® gel is applied once or twice a day, protecting injured skin, after application, with a non-adherent silicone dressing (Cuticell Contact®). The dressing is changed weekly, while the gel must be spread every day, even though the gauze. This procedure must be performed by the nursing staff, who also takes care of updating the documentation with new photographic material on a weekly basis.

- in case of intact skin (part of the preventive protocol for patients undergoing RT) the patient starts applying Jalosome® gel the evening before the first session of TBI, then the morning before undergoing the RT and after RT once returned at the ward. New gel application in the evening. At the end of the TBI, the patient continues with the application once a day self-monitoring of the condition of the skin (which does not redden or presents excoriation). Continue the treatment until the post-transplant white blood cells rise (day +20). Also in this case, the daily nursing re-evaluation and the weekly execution of photos are important.

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## RESULTS

The patients treated with this protocol of care showed a remarkable reduction of pain and an increase in skin regeneration visible within 6 to 15 days. Because of these encouraging results, the protocol was extended to patients before BMT, from the day before the first session of radiotherapy.

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## CONCLUSIONS

The efficacy of the experimental protocol was such that the researchers applied for approval to the Ethics Committee of San Raffaele University Hospital and implemented the same protocol as a preventive plan. Further plans of research include the application of the treatment to patients with chronic GvHD.

### **Bibliography:**

Friedrich EE et al. (2015) [Local delivery of antitumor necrosis factor- \$\alpha\$  through conjugation to hyaluronic acid: dosing strategies and early healing effects in a rat burn model.](#)  
*J Burn Care Res.*, 36 (2): e90-e101.