

# Prophylactically applied Hydrofilm reduces radiation dermatitis in whole-breast radiation therapy

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## Purpose/Objective

Numerous treatments have been studied for prevention and management of radiation-induced skin injury<sup>1</sup>. While protective superficial barrier-forming skin products, such as dressings or patches, have been used for decades in wound care management, their utilization for prevention of radiation dermatitis has barely attracted attention. We evaluated whether prophylactically applied Hydrofilm polyurethane dressings can reduce the frequency resp. severity of radiation-induced dermatitis.

## Methods

In this prospective, intra-patient randomized study, Hydrofilm<sup>2</sup> (Paul Hartmann AG, Heidenheim, Germany) polyurethane film dressings were applied prophylactically to either the medial or lateral breast half of 53 patients undergoing adjuvant radiation therapy of the whole breast following breast-preserving surgery. The applied fractionation regimen was 50 Gy in 25 fractions for all included patients. Patients receiving neoadjuvant or concurrent chemotherapy were excluded. During the radiation therapy period, the contralateral breast half was treated with 5% urea lotion (Eucerin UreaRepair Plus 5%, Beiersdorf AG, Hamburg, Germany) twice daily as control skin care since urea is recommended by several European medical guidelines for the prevention of radiation dermatitis<sup>3</sup>. Phantom studies were performed in order to evaluate possible dose variations resulting from the application of Hydrofilm. In weekly visits and on completion of radiation therapy, maximum severity of radiation dermatitis and erythema was assessed using RTOG/EORTC toxicity scores and five objective photospectrometric erythema measurements (CR-200, KonicaMinolta, Maronouchi, Japan)<sup>4</sup> were performed in both breast compartments. Patient-assessed treatment experiences of itching, burning, pain and limitations of day to day activities, using the validated modified RISRAS scale<sup>5</sup>, complemented the obtained data.

**Figure 1:**  
Exemplary photographs of two patients following adjuvant radiation therapy of the breast with 50 Gy (2Gy/fx).

Hydrofilm polyurethane dressings were applied laterally during the entire radiation therapy period.



## Results

Phantom studies revealed a clinically insignificant dose-buildup of 0.015 cm and dose variations of less than 0.1 %. Mean maximum radiation dermatitis RTOG/EORTC scores were significantly reduced from 1.33 to 0.35 within the Hydrofilm compartments (p=0.001). Additional objective photospectrometric measurements showed significantly reduced maximum erythema severity in favor of Hydrofilm (p= 0.0005). Moist desquamation was completely prevented by Hydrofilm, whereas 6 patients developed moist desquamation in the control compartments and required an additional symptomatic therapy with topical steroids. Exemplary photographs of two patients are given in Figure 1. The analysis of patient-assessed modified RISRAS<sup>5</sup> scores showed a significant reduction of patients' subjective experiences of itching and pain. Side reactions such as mild skin redness, itching, burning or rashes were rare and mostly resulted from shear effects at the peripheral areas of Hydrofilm dressings.

| Maximum RTOG/EORTC dermatitis scores | Hydrofilm compartment | Control compartment (5% Urea lotion) | p     |
|--------------------------------------|-----------------------|--------------------------------------|-------|
| Mean score                           | 0.35                  | 1.33                                 | 0.001 |
| Median score                         | 0                     | 1.0                                  | 0.001 |

## Conclusion

The prophylactic application of Hydrofilm polyurethane dressings in adjuvant radiotherapy of breast cancer patients may help to reduce or even prevent radiation dermatitis.

## References

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