Innovation Poster Session
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It doesn't need to be that bad!

The search for a solution to radiation-induced skin toxicities

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Hospital Code Name:

KEY PROBLEM

- Breast cancer is the most common malignancy for women in New Zealand. The majority will receive radiation therapy as part of their treatment regimen and acute radiation-induced skin toxicities (erythema; dry desquamation; moist desquamation) will occur in a significant proportion of these women
- There is no evidence-based standard treatment for these reactions – treatments vary not only between but also within institutions worldwide
- Many departments (including ours) opt for the use of aqueous cream despite a large randomised controlled clinical trial (n=357) showing that it neither prevents nor decreases the severity of skin reactions.

AIM OF THIS INNOVATION

Our overarching aim - to investigate whether we could find a treatment that would be superior to the current 'standard' of aqueous cream. The main challenge - 'standard' products cannot be used with radiation therapy because of the risk of them actually reacting with the radiation → increased risk of skin toxicities. This has consigned it to the 'too hard' basket for far too long and had to change!

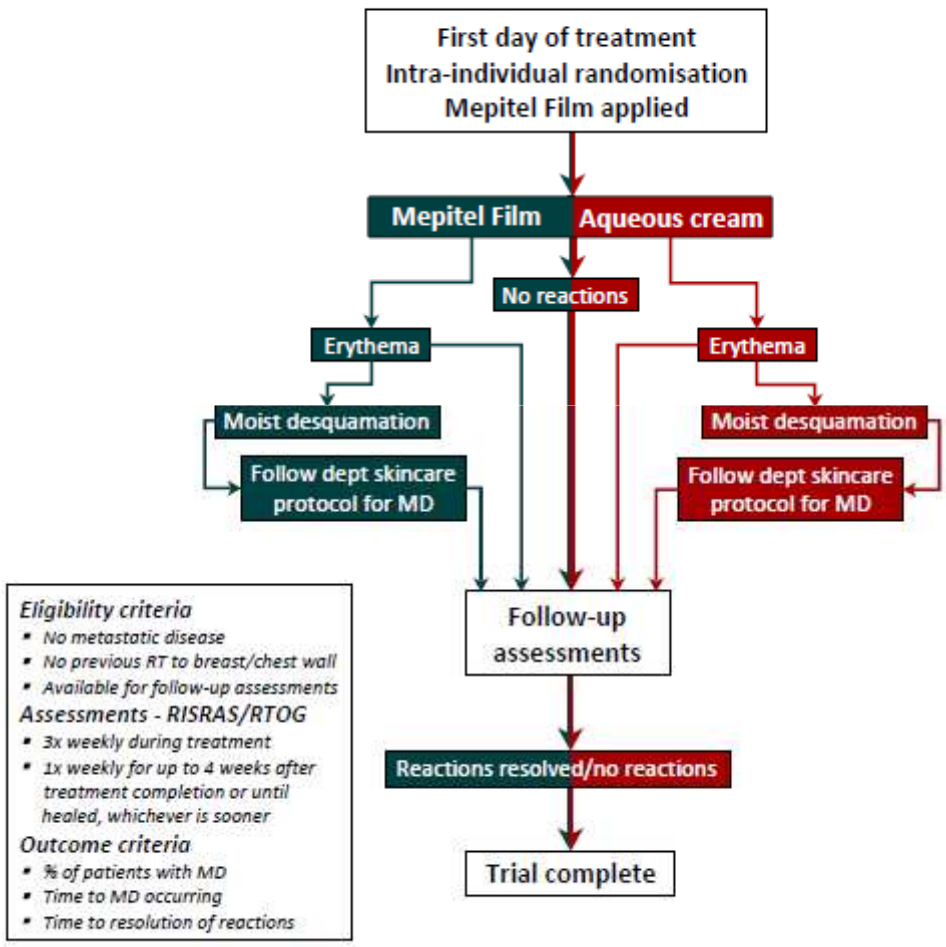
Our aim was threefold and sought to:

- Decrease the severity of skin reactions beyond our currently achievable 42% (as demonstrated in our previous management clinical trial)
- reduce the incidence of moist desquamation - the most extreme skin toxicity – by at least 20% from current levels
- Show a reduction in toxicities could actually correlate to a reduction in cost

BASELINE DATA

- Radiation-induced skin toxicities occur in ~85% of patients who undergo radiation therapy for breast cancer
- The most 'at risk' areas for all levels of skin toxicity are the axilla in all patients being treated for breast cancer (ie both mastectomy and lumpectomy patients) and the infra-mammary fold in patients who have undergone breast-sparing surgery
- Radiation-induced moist desquamation (MD) – an extreme but nonetheless fairly common skin toxicity affecting ~40% of patients - severely affects their comfort levels as well as their psychological well-being.
- MD poses the risk of infection in patients who, due to their condition and treatment, are already immuno-compromised.
- In extreme cases MD may result in a treatment break, which could compromise local control and, ultimately, patient outcome.

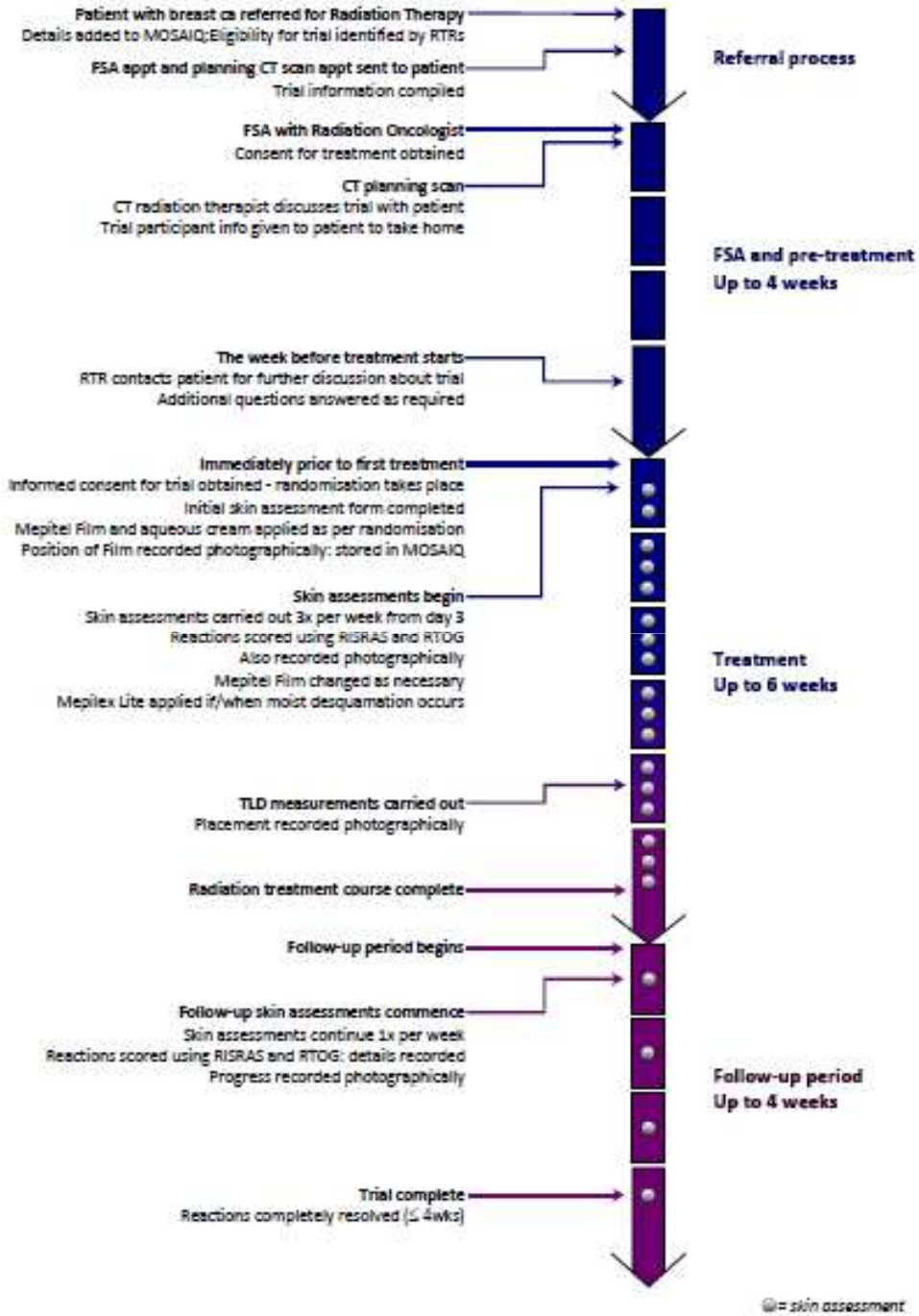
KEY CHANGES IMPLEMENTED



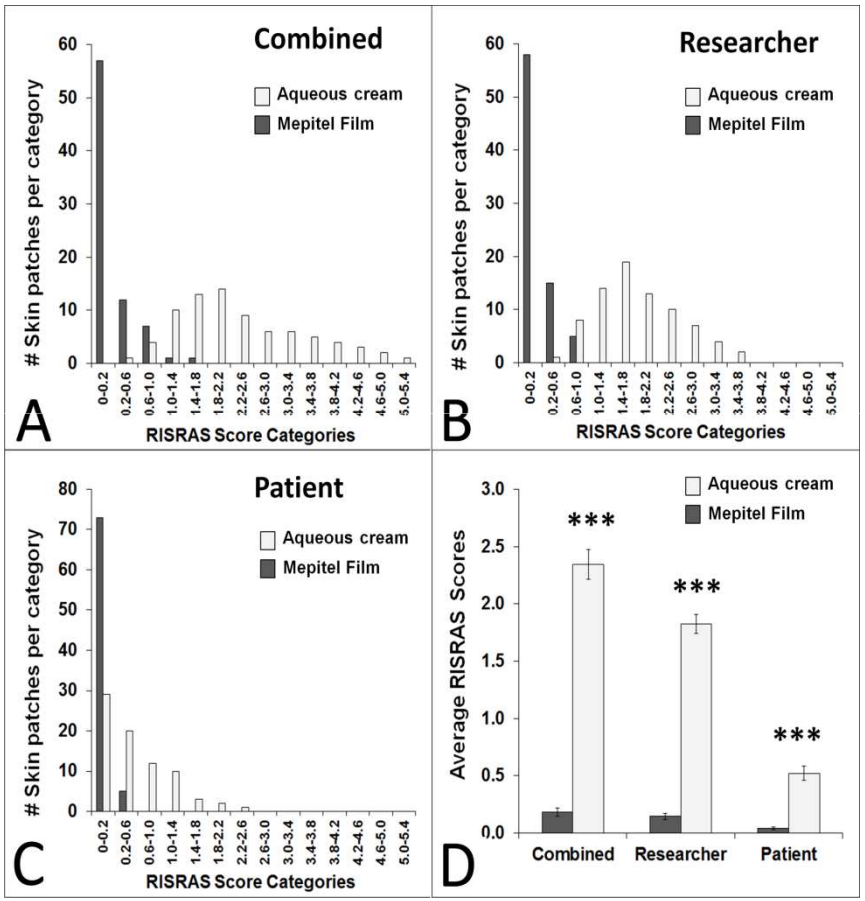
- Mepitel Film – a 'radiation-friendly' silicone dressing - identified as potential product for use on these patients
- Prophylactic intra-patient RCT started. Compares Mepitel Film with aqueous cream - 80 patients recruited over six month period. Aim: to provide robust, validated data to inform change
- Skin assessments carried out 3x per week on all patients using two internationally recognised assessment tools (RISRAS & RTOG). RISRAS includes a patient self-assessment component

KEY CHANGES IMPLEMENTED

- Follow-up weekly once treatment complete to assess time to complete resolution of toxicities
- Patient compliance excellent throughout trial
- Once data analysed and validation achieved, practice changed to using Mepitel Film in place of aqueous cream from the start of treatment

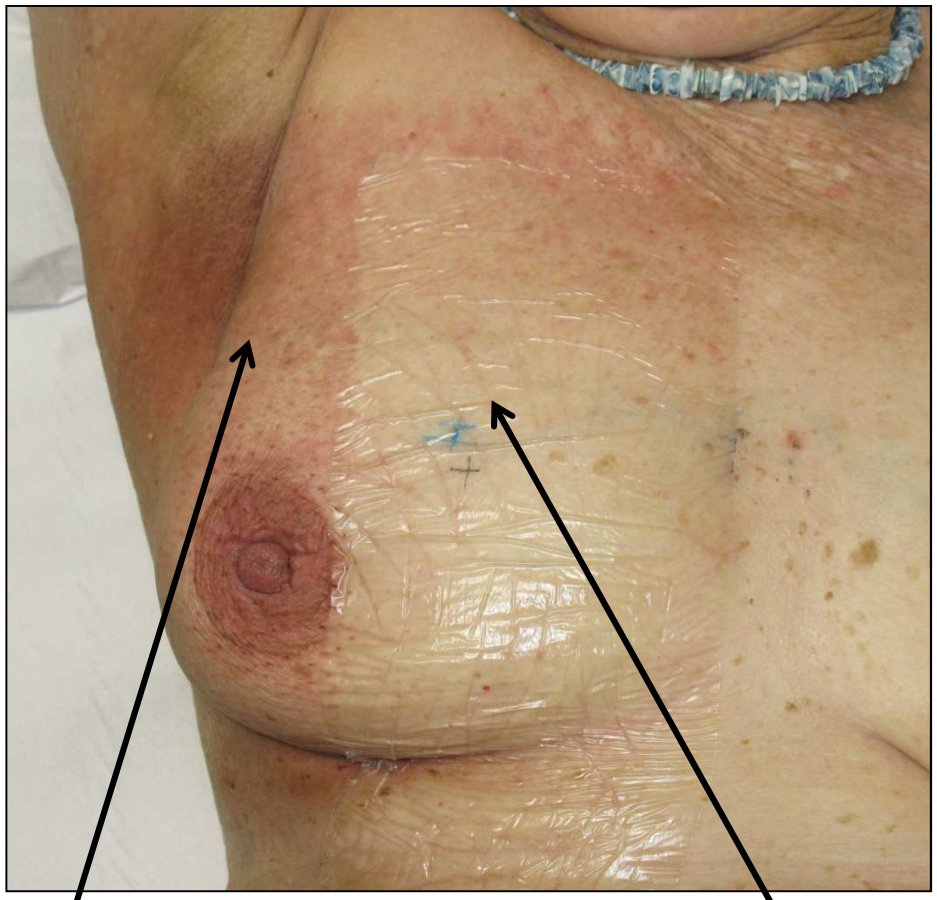


OUTCOMES SO FAR



- Figure shows distribution of Radiation-Induced Skin Reaction Assessment Scale (RISRAS) scores. A-C: RISRAS scores of skin areas were grouped into categories and displayed as total number of skin areas per category; D: RISRAS scores broken down into separate components and presented as mean values ± SEM of skin areas of 78 patients (*** p< 0.0001).
- Analysis of data shows that using Mepitel Film prophylactically reduces the severity of skin toxicities by over 90% and completely prevents the incidence of moist desquamation
- Time to complete resolution of reactions (healing) has been reduced from between 4 and 6 weeks to 2 weeks maximum

LESSONS LEARNT



- We have clearly demonstrated that patients do not need to suffer as a result of their treatment – in fact even the least severe of the skin toxicities is preventable.
- An initial cost benefit exercise indicates there is the potential for substantial savings to be made if we can stop this patient cohort from developing these reactions in the first place