Fish Skin for Wound Healing
NSG 404: Fundamentals of Evidence-Based Practice
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Key Methodology
Patients underwent application of fish skin for 5 sequential weeks followed by 3 weeks of standard care. Wound area, skin assessments, and pain were assessed weekly.

Comparison was evaluated between the standard procedure and the use of a fish skin matrix placed on the split-thickness skin graft (STSG) donor site, in patients operated on in our center for radial forearm free flap reconstruction for head and neck wounds.

Kerecis Omega-3 Wound product was applied three times to a ulcer located on the first metatarsal head.

Nile Tilapia Fish Skin was applied to a 23 year old burn victim’s right and left upper limbs.

The fish skin graft was applied weekly for a period of six weeks in the diabetic foot clinic. At each visit, the wound was photographed and independently measured using ImageJ software to calculate wound area. Secondary outcome measures were pain, infection, odor, discharge, and irritation.

Significance Statement
For patients with impaired wound healing, the use of fish skin grafting may provide a faster and higher quality healing than standard dressing care.

Key Practice
In wounds of less than three months duration, regardless of size, the median percentage wound area reduction was over 84.9% at six weeks (n=6, range: 71.3 to 100%).

Decrease Wound Healing Time
The healing time was halved when using the acellular fish matrix from 68 to 32 days, visual pain scale was >3 at five days (p=0.0034) and the infection rate was reduced from 60% to 0% (p=0.0039). With in 5 weeks the ulcer achieved complete closure. At one year the ulcer remained healed. At 17 days the the burns were completely re-epithelialized.

One study notes two wounds over three month’s duration, in these the wound area reduction was <42% at six weeks (n=2, range: 41.2 to 41.1%).

No Adverse Events
No patients developed infection or skin reactions, nor did they experience discharge, irritation or itching.

Decreased Wound Size
A 40% decrease in wound surface area (P<0.05) and a 48% decrease in wound depth was seen in 5 weekly applications of the fish skin graft and secondary dressing (P<0.05). Complete closure was seen in 3 of the 18 patients by the end of the study.

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Key Findings
- Decrease Wound Healing Time
- Decreased Wound Size
- No Adverse Events

Recommendations
- Educate patient on ways to prevent infections using the teach back method, making sure patients are washing hands, using sterile technique, and keeping the wound clean to help decrease the risk of infection.
- Refer patient to dietitian for education on adequate food choices to promote wound healing.
- Educate patient using teach back method on how to care for wounds, as caring for wounds using fish skin can be different then caring for wounds with standard dressings.
- Educate patient on pain management techniques that can be utilized, such as pain medications, positioning, and relaxation practices.
- Provide the patient with quality and accurate handouts that will describe the benefits of using fish skin to promote healing versus standard dressings.
- Nurses could hold group sessions to help inform patients on the use of fish skins for wound healing and demonstrate proper care from the patient perspective.

References