Negative Pressure Wound Therapy (NPWT)

OVERVIEW

Negative Pressure Wound Therapy or wound vacuum assistive closure devices offer increased wound healing through controlled negative pressure. These devices assist in wound healing by removing infectious material or other fluids by either continuous or intermittent negative pressures. Blood flow is increased and bacterial growth decreased, which promotes granulation tissue and closure of the wound. This assistance with wound healing is especially helpful for clients with chronic, acute, traumatic, sub acute, and dehisced wounds. Assistance with wound healing is also helpful for partial-thickness burns, ulcers (such as diabetic or pressure), grafts and flaps.

Indications:

- chronic
- acute
- traumatic
- sub-acute
- partial-thickness burns
- dehisced wounds
- diabetic ulcers
- pressure ulcers
- venous ulcers
- flaps
- grafts

Contraindications:

- malignancy in the wound
- untreated osteomyelitis
- not to be placed over exposed blood vessels or organs
- non-enteric and unexplored fistula
- necrotic tissue with eschar present

Precautions:

- weakened or friable blood vessels or organs near the wound
- active bleeding
- difficult wound hemostasis
- anticoagulants
- inadequate tissue coverage over vascular structures

- **Take care** to ensure that all vessels are adequately protected with overlying fascia, tissue, or other protective barrier when placing wound vacuum device close to blood vessels or organs.
- **Bone fragments** or sharp edges could puncture protective barriers, vessels or organs.
- **Wounds** with enteric fistula require special precautions. Please confer with the negative pressure device representative and physician.
- **Follow** Universal Precautions and read all inserts supplied by the device supplier before application.
- **Infected** wounds should be monitored closely and may require the dressing change more frequently. Infection can be serious and signs of systemic infection must be continually assessed. **If there are any signs of the onset of systemic infection or advancing infection at the wound site, contact the physician immediately to determine if the NPWT sound be discontinued.**

Care and safety tips: Keep therapy on: Never leave sub atmospheric pressure off for more than 2 hours per 24 hour period.

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Remove dressing if vacuum is terminated or is off for more than 2 hours in a 24 hour period. Notify the physician and follow his/her orders for wound care.
Dressing changes: Provide thorough wound cleaning following physician orders prior to applying dressing. Regular dressing changes should be done approximately every 48 hours or 3xwk. Dressing changes for infected wounds should be done every 12-24 hours. All dressings are prepackaged and sterile. Follow the physician's orders for sterile verses aseptic technique. May use skin prep and/or dressing to protect periwound tissue, before applying dressing.

ASSESSMENT

1. **Check physician order.** Review client's chart, diagnosis, medical history, and medication profile.

2**. The wound assistive device representative should be in the home on the first visit whenever possible.** Obtain from the Representative and Physician the frequency of dressing changes, the target pressure, whether intermittent or continuous and the type of foam to use.

3. **Assess** the client's knowledge of the procedure, signs and symptoms to report, and willingness to follow Physician orders.

4. **Monitor the wound:** Inspect the wound bed and surrounding structures extensively prior to applying dressing. Then, inspect the dressing/wound frequently to make sure that the foam is collapsed and that the negative pressure is being delivered in a consistent manner. (Teach the client/care person to monitor dressing to be sure that it is collapsed.) Monitor periwound tissue and exudate for signs and symptoms of infection or complications. Signs of infection could include fever, tenderness, redness, swelling, itching, rash, increased warmth in the wound bed or area, purulent drainage, and/or strong odor. Nausea, vomiting, diarrhea, headache, dizziness, fainting, sore throat with swelling of the mucous membranes, disorientation, fever greater than 102, refractory hypotension, orthostatic hypotension, or erythroderma, may be other signs of more serious complications of infection or related complications. **Notify Physician or call 911 immediately, if indicated.**

5. **If dressing adheres to wound:** Check with manufacturer. Unless contraindicated**,** add sterile water or normal saline into the dressing and let it set (soak) for 15-30 minutes. After allowing to set (soak) for 15-30 minutes, gently remove dressing. Consider putting a single layer, wide meshed, non-adherent dressing in wound bed prior to placing foam. (For dressings impregnated with silver- sterile water is recommended.)

6. **Pain:** Some clients may desire to pre-medicate prior to dressing change. If client complains of pain throughout treatment, consider changing type of foam used. Consult with the physician and negative pressure device representative.

7. **Unstable structure:** Unstable chest wall or non-intact fascia would require a continuous pressure not intermittent. A continuous negative pressure would minimize movement and stabilize the wound bed.

8. **Spinal cord injury:** If the client experiences autonomic hyperreflexia (sudden elevation of blood pressure or heart rate in response to stimulation of the sympathetic nervous system) discontinue the negative pressure device and contact physician.

9. **Body cavity wounds:** All underlying structures must be covered by natural tissues or synthetic materials to form a complete barrier between the underlying structures and the negative pressure device. **For optimum results:** The wound must not contain any eschar/hardened slough. Any slough at all will slow healing. Consult Physician. The wound must be free of osteomyelitis, or receiving concurrent antibiotic for active treatment of osteomyelitis. The wound must be supplied by enough circulation to provide for healing.

The Physician, Wound Vacuum Representative and manufacturer guidelines must all be consulted prior to providing care.

There are many types, sizes, and locations of wounds which require individualized, patient specific dressings. There are different types of foam, pressure settings and cycle settings that must be determined before providing care.

Changing of the Canister:

The canister should be changed at a minimum of 1 time per week but more frequently if it gets full.

DIAGNOSIS

- Risk for infection
- Impaired tissue integrity
- Impaired skin integrity

REFERENCES

1. V.A.C. Therapy Clinical Guidelines KCI, 2-B-128 Rev B 08/10
2. http://www.kci1.com/KCI1/vacapplicationvideosandguides
3. Delmar's Fundamental and Advanced Nursing Skills, 2005
4. WOCN Guidelines, Rev 12/09

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