STANDARDIZED PROCEDURE
CRYOTHERAPY/ LIQUID NITROGEN THERAPY

These procedures are intended to describe procedures performed by Nurse Practitioners and/or Certified Nurse Midwives (depending on the clinical privileges granted to the individual practitioner) at UC San Diego Health.

I. Policy
   a. As described in the General Policy Component.
   b. Covers only those registered nurses as identified in General Policy Component.

II. Protocol
   a. Definition: Cryotherapy is an effective way of destroying unwanted skin growth, through the application of low temperatures to living tissue, resulting in superficial tissue damage. Liquid nitrogen, a cold liquefied gas at a temperature of -196 degree Celsius, is the cryogen used at UCSD.
   b. Database:
      1. Subjective: The NP will obtain a baseline patient history prior to performing the procedure. Patient will be assessed for the need for the procedure. Verbal consent for the procedure are obtained prior to the procedure. Pt is informed of the potential adverse effects:
         a. Hypopigmentation is a common side effect of cryotherapy. Blister formation may also occur on areas with thin skin (e.g. face) or with aggressive freezing. This is associated with pain and may heal with dyschromia.
         b. Cryotherapy may sometimes cause nerve damage in some danger areas where the nerves lie superficially (e.g. sides of the fingers, angle of jaw and ulnar fossa of the elbow).
         c. Treated warts may return because they are caused by a virus and cryotherapy does not eradicate the virus.
      2. Objective: The NP will perform a focused exam and include vital signs.
      3. Storage: As liquid nitrogen is highly volatile & evaporates within hours, it has to be stored in a special container provided by the supplier. Clinic stocks are replenished every one and a half weeks. Liquid nitrogen stored in a vacuum flask or Cryojet canister may keep for up to 7-8 hours

III. Plan
   a. The following equipment is required: Liquid nitrogen in flask and cotton applicators OR filled Cryojet spray canister
   b. Treatment procedure
      1. The NP washes hands, dons disposable gloves, and examines and positions the patient and area to be treated.
      2. For cryotherapy using cotton swab applicators. For warts on the face, freezing is performed using minimal pressure until a light frost is observed. For warts elsewhere, freezing is performed until a 1-2mm rim of frost appears around the wart. Alternatively, liquid nitrogen may be applied for a specific length of time (e.g. facial warts: 3-5 seconds; palmar-plantar warts: 15-30 seconds; other sites: 10-15 sec). Cotton swabs
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should not be re-dipped in the flask; new swabs should be used if more liquid nitrogen is required.
3. For the cryospray method, the canister is held in an upright position with the cryotip approximately 1 cm away from the wart before the trigger is pressed to activate flow of cryogen. Timings are as above. For non-facial warts, 2-3 freeze-thaw cycles can be given.
4. Treatment is repeated at 1 to 2 weeks' intervals.
c. Patient Education: Patients are routinely counseled in the following areas so that they are aware of the treatment and recovery process.
1. Compliance to treatment. Patients are encouraged to keep to the weekly or bi-weekly treatment regimen as ordered by the NP.
2. Pain relief. If pain persists after treatment, oral analgesics such as acetaminophen may be taken for pain relief. However, if the treated area becomes extremely painful and/or has signs of infection, including redness, swelling, and/or purulent drainage, patients are advised to return to clinic.
3. Blister formation. Patients are warned of the possibility of blistering and taught wound care. Intact blisters can be left alone to dry up. However, if blisters become large, tense, and cause pain or discomfort, they should return to the clinic for evaluation. Patients are instructed not to attempt to open or drain the blister as it could become infected.
4. Appearance of new warts. Patients are warned that the warts treated may return because they are caused by a virus. Removing the wart does not treat the virus.
5. Prevention of spread of viral warts. Patients are informed that warts are contagious and may spread from one part of the body to another or to other people. Those with plantar warts are advised not to share footwear or to walk around the house barefoot. Likewise, sharing of personal items such as towels is discouraged. Personal hygiene is encouraged and the patient is advised to keep treated areas dry and clean, as a moist environment is conducive to the growth and spread of viral warts. Oral warts can be spread by kissing. Patients are instructed to use a barrier method such as a condom or dental dam to prevent the spread of genital warts through sexual contact.

VI. Reference: http://www.nsc.gov.sg/showpage.asp?id=323, Dermatological Nursing: Cryotherapy for Viral Warts, National Skin Centre (Singapore)

VII. RESPONSIBILITY

Please contact the Advanced Practice Council if you need help. The administrative assistant for the Chief Nursing Officer can direct you. Call; 619-543-3438.

VIII. HISTORY OF PROCEDURE

Revised by the Committee of Interdisciplinary Practices: 2/26/2014, 9/28/2016
Reviewed by the Medical Staff Credentials Committee: 3/5/2014, 10/6/2016
Approved by the Medical Staff Executive Committee: 3/20/2014, 10/7/2016