



Cryotherapy Treatment Procedure

Procedure Number
WCDHB-PC-0020

Version Nos:
2

1. Purpose

This Procedure outlines the details for cryotherapy treatment of patients within the West Coast District Health Board (WCDHB) Grey Hospital.

2. Application

This Procedure is to be followed by all clinical staff throughout the WCDHB Grey Hospital.

3. Definitions

For the purposes of this Procedure:

Liquid Nitrogen is taken to mean a cold, liquefied gas with a temperature of 196 degrees below zero Celsius. It is used for cryotherapy treatment in Coast Health Care Facilities (Primary & Secondary Care). It should at all times be treated with extreme caution. As Liquid Nitrogen is highly volatile & evaporates within hours, it is stored in a special storage Dewar, which is situated at Grey Hospital Laboratory.

4. Responsibilities

For the purposes of this Procedure:

All WCDHB Staff Members are required to abide by the requirements of this Procedure

5. Resources Required

This Procedure requires:

- i). Liquid Nitrogen flask with or without Cryojet spray accessories
- ii). Cotton wool swabs / applicators
- iii). Personal Protective Equipment (Gloves, Apron, Safety glasses & appropriate footwear)
- iv). Size 15 or 10 disposable scalpel blades, for paring thick lesions
- v). Elastoplast for post-cryotherapy dressing

6. Process

1.00 Introduction

1.01 Cryotherapy is an effective way of destroying superficial skin growths such as Molluscum Contagiosum, Seborrhoeic Warts, Actinic Keratoses (growths), Papilloma (skin tags), Lentigines (age spots), Basal Cell Carcinoma (skin Cancer) and Viral Warts through the application of low temperatures to living tissue.

1.02 There are several treatment modalities for Viral Warts. Patients would have tried and failed topical salicylic acid treatment prior to the use of cryotherapy. Surgical interventions is usually contemplated only in special circumstances or after prolonged cryotherapy (6 or more sessions) fails to result in cure. Viral warts can occur at any site.



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- 1.03 Common clinical subtypes of viral warts are:
- | | |
|---------------------------------------|--|
| Palmar-plantar warts (most common) | Located on palms or soles |
| Plane warts | Usually on the face or arms |
| Genital warts (condylomata acuminata) | Classified Sexually Transmitted Infections |

2.00 Collection, Transportation & Handling Liquid Nitrogen

- 2.01 Always ensure working area has adequate ventilation when handling Liquid Nitrogen.
- 2.02 Personal protection clothing including leather gloves, safety glasses & covered foot ware are used when decanting the liquid nitrogen from the Liquid Nitrogen storage dewar to the flask. Gloves & safety glasses are available from laboratory reception.
- 2.03 To fill the flask, remove the top of the dewar and dip the specialised ladle into the Liquid Nitrogen. Remove beaker and carefully pour the Liquid Nitrogen into the flask. For the flask to operate properly, fill it from 33% to 70% fill. After the flask is filled, wait 30 – 60 seconds before replacing the top (this will allow the Liquid Nitrogen to stop boiling), checking that the rubber gasket is still in place to ensure the seal is maintained.
- 2.04 During transportation or handling of the flask, it is held by the blue foam insulation collar or in a specially designed transport holder.
- 2.05 If the cryogun has been used, depressurize the flask before the top is removed. Unscrewing the top by quarter to half a turn will allow the gas to vent from the cover. When the hissing has stopped completely the top may be removed.
- 2.06 Ensure that only the manufactures accessories are used with the cryotherapy flask and that all spray tips / probes are tightened to finger tight firmness only.
- 2.07 At the conclusion of the day, the cryogun should be stored closed (whether or not there is a residential amount of Liquid Nitrogen in it. This is important to eliminate the potential build up of condensation within the unit and fittings).
- 2.08 If the cryogun does not spray or sprays only intermittently, or handle sticks open, or exterior of the flask frosts over and there is excessive Relief Value activity (hissing), refer to manufactures troubleshooting instructions immediately.

3.00 Pre Treatment Education

- 3.01 Before carrying out the treatment, the Nurse confirms the patient's identity & checks the Doctor's treatment order or Standing Order Policy (for Nurse-lead Clinics).
- 3.02 Patients are routinely educated in the following: the treatment, its purpose, side effects (including impending pain during the procedure) and the recovery process. Patient education is critical in promoting active participation of the patient towards their recovery.



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- 3.03 Regarding treatment, they are encouraged to keep to the weekly or fortnightly treatment regimen as ordered by the doctor for optimal results.
- 3.04 If pain persists after treatment, oral analgesics such as paracetamol may be taken for pain relief. However, if the treated area becomes extremely painful or infected, they are advised to consult the doctor.
- 3.05 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 may be pricked with a sterile needle and drained before protection with a dry dressing.
- 3.06 They are also to be warned that sometimes, during the course of treatment, new warts might form, while existing ones are being destroyed. They should not get too alarmed or distressed upon noticing more new Warts. These can also be treated along with the existing Warts.
- 3.07 Advice is also given on limiting or preventing spread of Viral Warts. Patients are informed that warts are contagious and may spread from one pad 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. Regular swimmers are advised to avoid swimming until the Warts have completely resolved.
- 3.08 Changes in pigmentation is a common and may be permanent e.g. lighter or darker. 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 scarring or keloid formation. Cryotherapy may sometimes cause nerve damage and on going pain in some danger areas where the nerves lie superficially (e.g. sides of the fingers, angle of jaw and ulnar fossa of the elbow). Extra care will be exercised in these situations. Infections that require an antibiotic can also occur.

4.00 Process

- 4.01 Signed informed consent from parent / guardian if child under 16 years (1st visit only) is obtained.
- 4.02 Wash hands; wear gloves when checking the patient areas to be treated.
- 4.03 Normal wound care practices are to be adhered to; treated areas are covered with a plaster, as required.
- 4.04 Hyperkeratotic warts and previously treated wads are pared down with a blade. Care should be taken to prevent cutting too deep into the dermis. The depth of paring should be until the thrombosed vessel ends are just visible as specks.
- 4.05 If bleeding occurs, haemostasis is easily achieved with firm pressure applied on the bleeding points.



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4.06 Decide on type of lesion, lesion size, patient tolerance and method of application for Liquid Nitrogen.

Treatment Cycles		Treatment Length	
Minimum	Maximum	Minimum	Maximum
3-5 second cycle	10-30 second cycle repeated up to 4 times	One treatment episode	Review after 6 months for warts, within 12 weeks for seborrhoeic warts & actinic keratoses
Route	Frequency	Special considerations relating to administration of concurrent medications	
Topically	2 – 4 weekly	Withhold keratolytic treatments until inflammation settles (between cryotherapy treatments)	

5.00 Cotton Swab Applicators Method

- 5.01 Cotton wool is wrapped loosely around the stick to hold more liquid nitrogen and is dipped into the flask filled with the liquid nitrogen before applied to the area for treatment.
- 5.02 For plane Warts on the face, freezing is performed using minimal pressure until a light frost is observed.
- 5.03 For Warts elsewhere, freezing is performed until a 1-2mm rim of frost appears around the wart.
- 5.04 Alternatively, liquid nitrogen may be applied for a specific length of time:
- Facial warts: 3-5 seconds
 - Palmar-Plantar Warts: 15-30 seconds
 - Other sites: 10-15 seconds.
- 5.05 Cotton swabs should not be re-dipped in the flask; new swabs should be used if more liquid nitrogen is required.

6.00 Cryospray Method

- 6.01 The canister is held in an upright position with the cryotip nozzle approximately 1 cm away from the lesion before the trigger is pressed to activate flow of Liquid Nitrogen. Timings are as above. For non-facial Warts, 2 freeze-thaw cycles can be given.
- 6.02 If cryogun nozzle comes into contact with the patients skin, wait for the probe to thaw sufficiently before attempting to break contact.
- 6.03 Only nozzles that have come into contract with the patient skin require sterilization. These are sent to CSSD for autoclaving.
- 6.04 Treatments are reviewed and repeated at 2 to 4 weeks' intervals dependant on patient tolerance. Follow up appointment organized



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7.00 Documentation

- 7.01 Wound chart used, which shows area on body involved, length of time (seconds) of each cycle (total number of cycles) & equipment used (including size of nozzle if cryo gun used).
- 7.02 Progress of treatment is noted as is any special instructions and review period.
- 7.03 GP letter sent (as applicable) at end of appointment or therapy or when a progress report is deemed appropriate (Secondary Care Clinic)
- 7.04 Signature of Doctor / Nurse administering treatment.
- 7.05 Advice and / or referral to Doctor or Specialist
- If lesion is not resolved within 3 months of treatment.
 - If lesion grows and / or worsens during treatment.
 - If patient has an adverse reaction to treatment.
- 7.06 Action for patients excluded from treatment or not wishing to receive care from the nurse
- Education on self resolution of Warts / Molluscum and / or patient will be referred back to the referring Doctor or referral to Sexual Health Doctor for Genital Warts.
 - In the case of GP referrals the patient will be booked onto a Dermatology clinic to see the Specialist within 4 weeks.

7. Precautions And Considerations

- ➔ Always ensure working area has adequate ventilation when handling Liquid Nitrogen.
- ➔ Normal wound care practices are to be adhered to; treated areas are covered with a plaster, as required.
- ➔ If bleeding occurs, haemostasis is easily achieved with firm pressure applied on the bleeding points.

8. References

- BOC Gases Liquid Nitrogen MSDS, 24/12/04
- British Dermatological Nursing Group Patient Group Direction: TEMPLATES
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- NZ Practice Nurse, Dec. 1993. Consumer Leaflet
- University of Utah Health Sciences Centre. Office of Patient Education, University of Utah Hospitals & Clinics, Document # 142 Wound Care Instructions Liquid Nitrogen Treatment, Dermatology Clinic. National Skin Centre 2002.



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9. Related Documents

WCDHB Clinical Documentation Procedure

Revision History	Version:	2
	Developed By:	Janet Hogan Mngr Sexual Health
	Authorised By:	Director of Nursing
	Date Authorised:	June 2005
	Date Last Reviewed:	November 2007
	Date Of Next Review:	November 2009