Pulmonary Diagnostics: Bronchoscopic Cryotherapy with ERBECRYO 2 Unit

Site Applicability

St. Paul's Hospital

Practice Level

Basic Skill: Respiratory Therapists

Requirements:

The ERBECRYO 2 system should only be used with CO_2 gas.

Need to Know

Bronchoscopic cryotherapy enables the destruction of tissue by the application of extreme cold. It should be considered for the removal of foreign bodies, mucus plugs, blood clots, necrotic tissue, tissue tumors, and for obtaining tissue biopsies.

ERBECRYO 2 probes are disposable and are not designed for multi-use application. If the disposable cryoprobe cable becomes disconnected from the cryo unit prior to concluding the procedure, it may become non-functional with repeated plug-in attempts.

Indications:

- Endobronchial/Transbronchial biopsy
- Foreign Body Removal
- Mucus Plug/Blood Clot Removal
- Patients with high O_2 requirements not suitable for cautery or laser
- Endobronchial therapy for early stage lung cancer

Equipment and Supplies

- ERBECRYO 2 Unit
- Disposable Flexible Cryoprobe

Flexible, single use cryoprobes are available in two sizes:

Flexible Cryoprobe OD 1.1 mm; length 1.15 m (with oversheath, OD 2.6 mm; length 817 mm)
Flexible Cryoprobe OD 1.7 mm; 1.15 m

*The minimum scope size working channel size is 1.2 mm (minimum working channel size for oversheath application is 2.8 mm)

Procedure

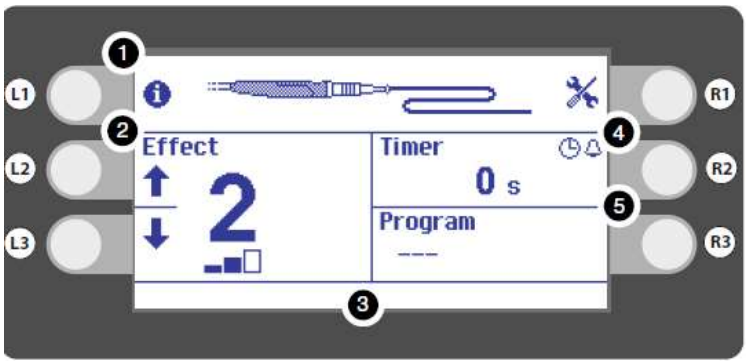
Steps

1. Plug ERBECRYO 2 unit into an AC wall power outlet.

2. Turn on the CO_2 tank by opening the bottle valve. Ensure connections are tight and no gas is leaking.

3. Use the power switch to turn the unit on. Allow the system to run through a short self-test. If the input pressure at the gas connection is too low or too high, check the gas supply. Adequate input pressure must be between 45 to 65 PSI. If gas supply is adequate, you will be prompted to connect the cryoprobe.

4. Plug the instrument connector into the instrument socket of the cryo unit. Once the probe is connected, default settings are displayed on the main screen:



- Section (1): Illustration of the instrument

- Section (2): Displays the "Effect". By selecting the effect you can influence the temperature of the probe tip. The higher the effect, the colder the probe tip will be. The bars beneath the effect show how many effects are supported by the instrument.
- Section (3): Displays any status and/or error messages. Refer to user manual for details.
- Section (4): Displays "Timer". The timer provides various options for measuring the freeze interval. The default setting is "count up and beep". To adjust the timer settings, press the selection button next to the timer display and use the selection buttons to navigate the menu options:

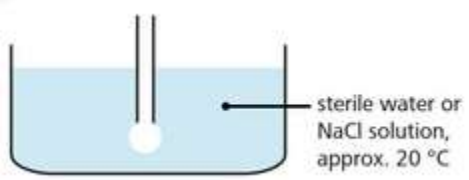
Timer Setting	**Description**
No Timer	The freeze interval is not measured
Count Up	The freeze interval is measured in increments of one second
Count Up & Beep	The freeze interval is measured in increments of one second. A signal sounds once every second
Count Down & Beep	Enables selection of a countdown interval. A signal sounds once the countdown has been completed.

Note: Timer setting preferences should be discussed with the physician performing bronchoscopy as part of the pre-procedure safety checklist.

- Section (5): Displays "Program". With the default setting, no program is selected. You can create a program setting by saving the effect and timer preferences within this menu option.

5. Place the footswitch on the floor at the head of the bed for physician use/control.

6. Check the function and seal of the cryoprobe: fill an empty medication cup with room temperature sterile water or normal saline. Immerse the probe tip in the water or saline to a depth of 5cm then activate the cryo unit via the footswitch for approximately 5 seconds. A clearly visible, homogenous ball of ice must form at the tip of the probe.



If an ice ball does not form, check to ensure all connections between the gas supply and the cryo unit are tight.

7. After the procedure, dispose of the cryoprobe into an appropriate sharps container.

Cleaning:

Disinfect cryo unit with hydrogen peroxide wipes (i.e. Accel/Cavi). Do not use alcohol/ethanol based cleaning products.

References

ErbeCryo User Manual. ErbeCryo 2 V 1.0. (2020).

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Approved By: *(committee or position)*	PHC
	Pulmonary Diagnostics Coordinator, Respiratory Services Professional Practice Leader, Respiratory Services Medical Director, Bronchoscopy
Owners: *(optional)*	PHC
	Respiratory Therapy