

## INSTRUCTIONS FOR PRESSURE RECORDING WITH NEOPRESS

### Neomedix Perfused Lumen Catheter System

#### Pressure Recording Technique:

This is prepared on the basis that the recording system utilises extra-corporeal pressure transducers and fluid filled, perfused lumen, catheters. A perfused lumen technology is required to record accurate pressure values over a physiological range of pressure rise-times (including those generated by a cough) in a sphincter. The technique comprises a pressurised fluid source, hydraulic resistance prior to the catheter connection and low compliance transducer and plumbing characteristics. Any single compromise of these items physical characteristics can considerably impair the systems performance. If recording cough pressure transmission ratios, the same pressure measuring characteristics should apply to both the channels being monitored to remove subtraction errors in the measuring system itself.

Frequently it is found that labs perfuse the urethral pressure lumen channel whilst the vesical pressure lumen channel is measured with a static fluid coupled (non perfused) technique. Assuming an identical pressure change is applied to each pressure sensing port it can be seen that the more sensitive, faster responding urethral channel will give a greater recorded amplitude response over the time from the resting baseline to the peak of the cough transient. A subtraction error will therefore occur and can reflect in a positive error in the measurement of a cough pressure transmission ratio. We therefore recommend that all pressure channels are perfused.

#### Preparation:

Prepare a bag (500ml or 1000ml ) of saline and locate it inside the supplied Neopress pressurised cuff . Hang the bag and cuff from a hook on the tip of the IV pole (not on the Filling Volume transducer). Note these cuffs are available for 500ml or 1000ml bags.

- Slide the sterile pressure transducer domes onto the transducer pressure transducer, which is itself located on the multi transducer mounting bracket, until the domes lock 'clicks'. Note you may have either two or three transducers, depending upon the number of Acquiamp amplifier channels you have available.
- Remove the sterile perfusion set PL-2 for a two transducer system or the PL-3 for a three transducer system. Introduce the spike into the IV bag. Ensure the taps (one on each fine hydraulic resistance line) are turned off such that the line of the tap is at 90 deg to the axis of the pressure line.
- Connect each of the fine hydraulic resistance line Luer fittings to the bottom of the Luer fittings on the transducer dome.
- Manually pump the sphygmo. pressurising bulb until the pressure gauge (plastic cartridge with a moving centre spiggot ) on the IV bag pressurising cuff reads in the red or about 400cm H<sub>2</sub>O. This reading is seen on the gauge spiggot.
- Remove in turn each patient catheters Luer pressure fitting end of the catheter from the sterile bag and connect the catheter(s) Luer fitting to the top Luer port of the appropriate pressure transducer. Leave the sterile remainder of the catheter lopped in the bag.
- If you have three transducers you will probably be using a dual lumen Pves and Pura catheter and one single lumen Pabd catheter. If this is the case connect the Pves line to the Pves transducer upper Luer fitting, the Pura line to the Pura

- transducer upper Luer fitting and the Pabd line to the Pabd transducer upper Luer fitting.
- If you have only two transducers and are using a dual lumen Pves and Pura catheter and one single lumen Pabd catheter you will have to use the provided Luer male to male adapter and the one stopcock on the Pabd/ura transducer. These go onto the shared transducer domes upper Luer fitting. This allows you to select with the stopcock either the Pura or Pabd catheter lumen as appropriate when testing in either CMG or Urethral modes. In this case the third Pves line goes to the Pves transducers upper Luer fitting.
  - If you are recording in only the CMG mode, connect the Pves line to the Pves transducer upper Luer fitting and the Pabd line to the Pabd transducer upper Luer fitting.

*Note* it is suggested to leave the sterile remainder of the catheter in the sterile bag until ready to introduce them into the patient.

- Open the PI-2 or PL-3 perfusion line taps (turn 90deg until the tap is in line with the axis of the pressure lines.
- After about 2.5 minutes the Perfusion lines, transducer domes and the patient catheter lumen should have been purged of air and saline will be slowly dripping uniformly from all pressure sensing ports at about 0.3 to 0.5 ml/min
- With the catheters still in their opened sterile bags, hold them at the position at which you desire the zero reference pressure to be (at the symphys pubis or the centre of the pressure transducer domes – dependant upon your protocol) and operate the zero balance control. All baselines should return to the zero baseline (+/- 3 cm H<sub>2</sub>O).
- Lift the catheters a known height (to say a marking on the IV pole relative to the position at which you zero balanced) and check the calibration value is correct. (remember to have perfusion in progress (ON) as you do this.
- Introduce the catheters into the patient and carry out the testing procedure as usual.

#### ATTENTION

- Ensure that you know the correct catheter lumen pressure lines go to the correct pressure transducer. Note: not always, but usually, these go to the Acquiampifier front panel input connectors with the letter as shown below.

Pabd= channel C or D

Pves = channel D or E

Pura = channel E or F

There are configurations which allow CMG and Urethral testing with just two pressure transducers and these are usually:

Pabd/Pura = channel C

Pves = channel D

- Allow flushing until all air is expelled from all lumen in the patient catheters. If this is not complete then the test cough response is usually of a lower amplitude. If this is the case just wait 20 seconds and test again.

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