
The Role of Intravenous Lidocaine in Treating Chronic Non-Malignant Pain

Harry F.L. Pollett, MD, FRCPC
Medical Director, Chronic Non Malignant Pain Clinic
Northside General Hospital, North Sydney, Nova Scotia



Or:

What to do when
you don't know what
to do

History of IV Local Anesthetic Analgesia

- 1908-First reported use of IV local anesthetic analgesia
- 1943-R.A.Gordon used IV procaine in burn patients
- 1943-Lidocaine, the first amide type local anesthetic, developed by Nils Lofgren and Bengt Lundqvist
- 1948-Lidocaine marketed
- 1982-Boas et al. reported significant pain reduction in patients with deafferentation pain using IV lidocaine infusion
- 1996-IV lidocaine infusions commenced in our clinic. Approximately 15,000 infusions performed since that date
- 2005-Forty-eight hour infusions of IV lidocaine commenced in our clinic using elastomeric infusion pumps. Approximately 200 infusions done to date

Clinical Technique #1

- Patients are seated in chairs and IV's are started and monitored by nurses
- 200-400 mg. of lidocaine is infused in 100 ml. normal saline or 5% Dex/H₂O over 30-60 minutes
- Patients are discharged at end of infusion



Results - Clinical Technique # 1

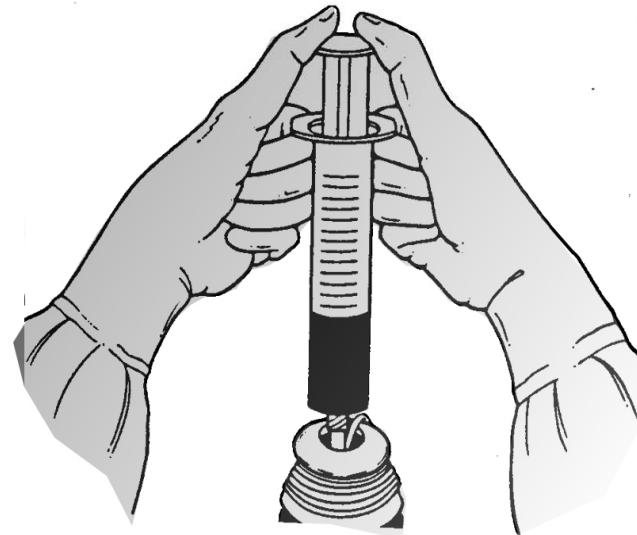
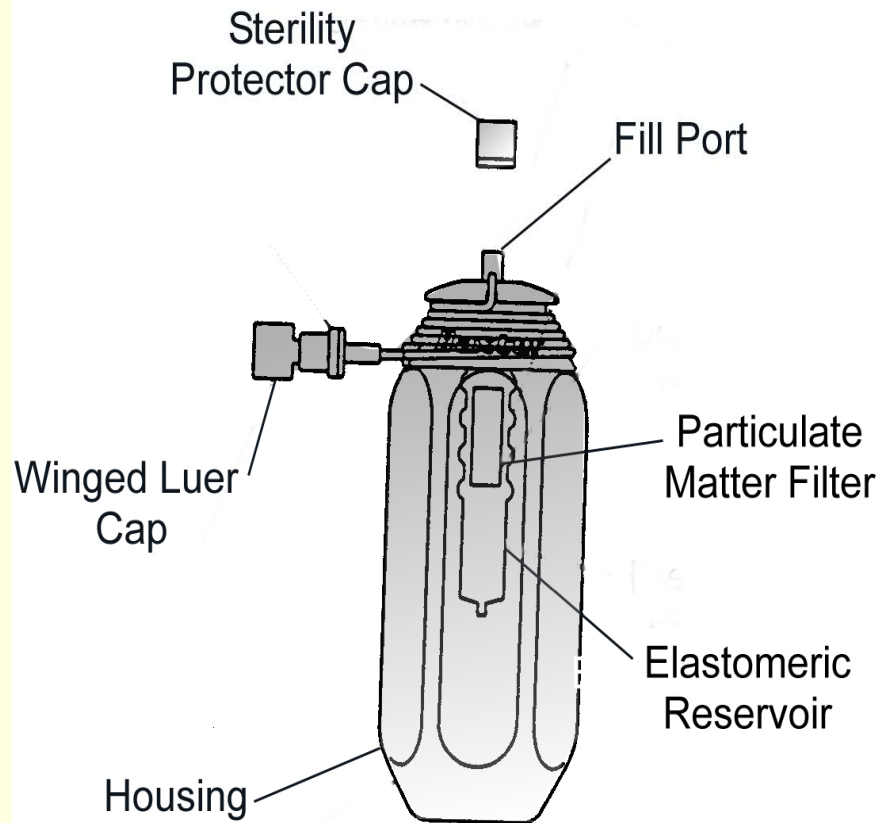
- Average pain reduction from 8/10 to 5/10
- Average pain reduction lasts 2-5 days
- Approximately 5 out of 6 patients will experience relief, regardless of cause of pain
- Patient has optimum lidocaine dose-too much or too little is less effective
- Treatment will frequently fail in presence of infection, but will work again when infection is resolved

Clinical Technique # 2

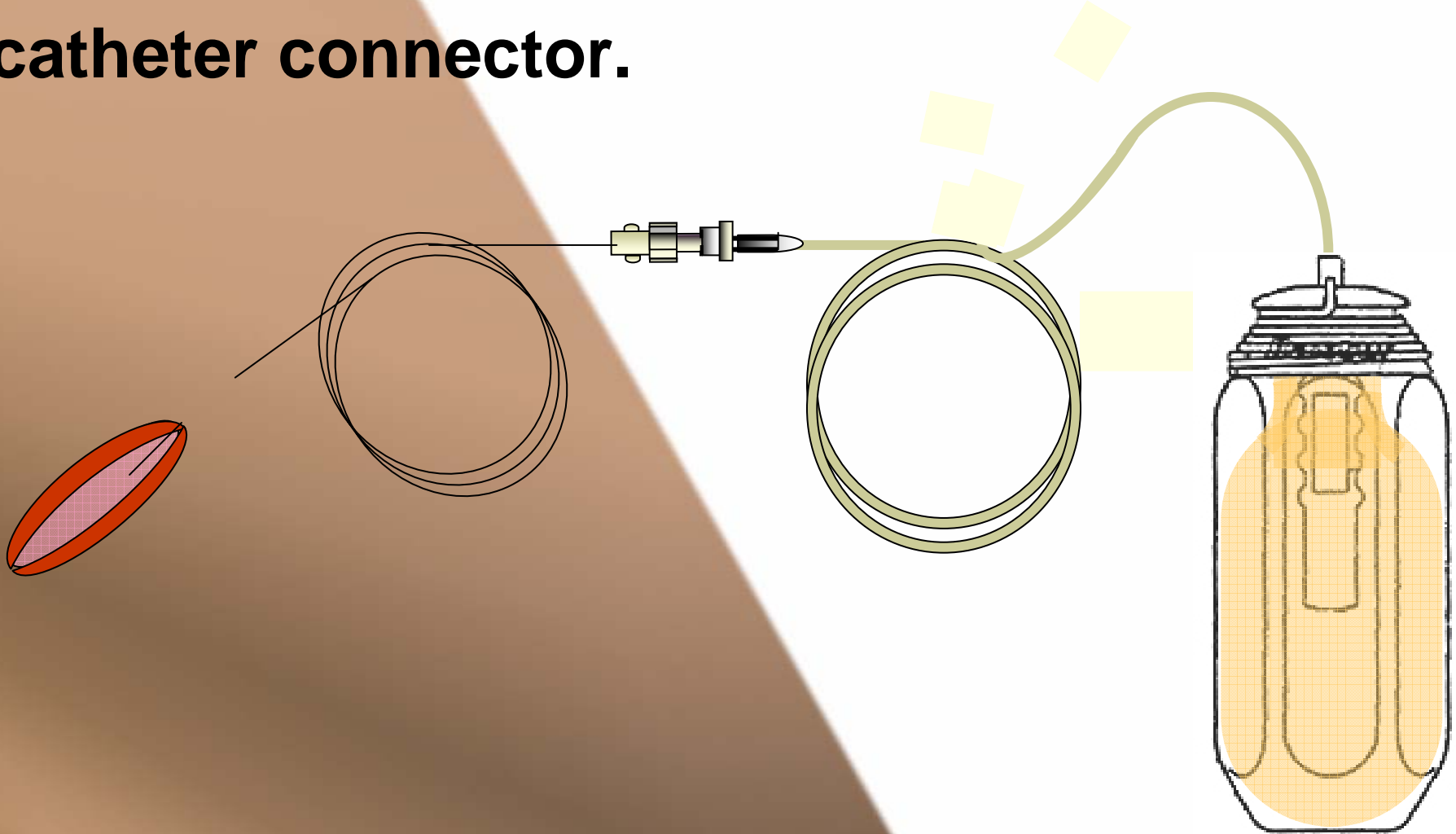
- Initial dose is arbitrarily set at 3 times technique # 1 dose
- Dose is in 240 ml, of solution given IV at 5 ml./hr. through fixed rate elastomeric infusion pump
- Patient is sent home with printed instructions and returns in 48 hours for pump removal



Infusor SV and Infusor LV



Once proper placement of the cannula is confirmed, the filled Infusor is connected to the intravenous cannula via the catheter connector.



Results: Clinical Technique # 2

53 Patients - Initial Treatment

36 Female

- Avg. age - 46.2 years
- NPR-Start - 7.4/10
- NPR-Finish - 4.3/10
- Avg. dose - 1061 mg.
- Pain Relief - 3.47 weeks
- Maximum - 5.1 weeks
- Minimum - 0.3 weeks

17 Male

- Avg. age - 50.1 years
- NPR-Start - 7.4/10
- NPR-Finish - 4.7/10
- Avg. dose - 1094 mg.
- Pain Relief - 1.91 weeks
- Maximum - 3.7 weeks
- Minimum - 0.0 weeks

Clinical Technique # 2: 50 Patients Concomitant Medications

33 Female

■ Opiates	-	15
■ Anti-inflammatories	-	4
■ Anti-convulsants	-	5
■ TCA's	-	8
■ SSRI's	-	9
■ Sedatives	-	6
■ Muscle relaxants	-	4
■ Tryptans	-	1

17 Male

■ Opiates	-	10
■ Anti-inflammatories	-	5
■ Anti-convulsants	-	1
■ TCA's	-	2
■ SSRI's	-	2
■ Sedatives	-	4
■ Muscle relaxants	-	2
■ Tryptans	-	1

Results - Clinical Technique # 2

Side Effects & Complications

	Females	Males	Average
Headache	39.4%	23.5%	34%
Nausea	33.3%	17.7%	28%
Somnolence	24.2%	29.4%	26%
Tape Irritation	9.1%	17.7%	12%
Dizziness	9.1%	11.8%	10%
Insomnia	6.1%	11.8%	8%
Flushing of Skin	12.1%	0.0%	8%
Pruritis	9.1%	5.9%	8%
Metallic Taste	3.0%	11.8%	6%

Results-Clinical Technique # 2

13 Patients-Fibromyalgia

11 Female

- Avg. age - 50.3 years
- NPR-Start - 6.6/10
- NPR-Finish - 2.5/10
- Avg. dose - 1007 mg.
- Pain Relief-5.21 weeks
- Maximum - 8.0 weeks
- Minimum - 0.6 weeks

2 Male

- Avg. age - 55.7 years
- NPR-Start - 8.8/10
- NPR-Finish - 6.3/10
- Avg. dose - 1150 mg.
- Pain Relief - 2.86 weeks
- Maximum - 3.0 weeks
- Minimum - 2.7 weeks

Results - Clinical Technique # 2

7 Patients-CRPS

4 Female

- Avg. age - 39.4 years
- NPR-Start - 7.4/10
- NPR-Finish - 6.0/10
- Avg. dose - 1055 mg.
- Pain Relief -1.43 weeks
- Maximum - 3.3 weeks
- Minimum - 0.6 weeks

3 Male

- Avg. age - 43.8 years
- NPR-Start - 7.3/10
- NPR-Finish - 5.5/10
- Avg. dose - 1200 mg.
- Pain Relief - 1.57 weeks
- Maximum - 3.7 weeks
- Minimum - 0.0 weeks

Results - Clinical Technique # 2

11 Patients - **Low Back Pain**

5 Female

- Avg. age - 51.5 years
- NPR-Start - 6.6/10
- NPR-Finish - 3.8/10
- Avg. dose - 1104 mg.
- Pain Relief - 6.89 weeks
- Maximum - 15.1 weeks
- Minimum - 2.4 weeks

6 Male

- Avg. age - 51.2 years
- NPR-Start - 7.2/10
- NPR-Finish - 4.1/10
- Avg. dose - 1117 mg.
- Pain Relief - 2.19 weeks
- Maximum - 3.4 weeks
- Minimum - 0.3 weeks

Results

One Patient - 5 Treatments

Female

Age 45.4 - Low Back Pain

- Medications-Penicillin, Dixarit, Accurace, Neurontin, Pantoloc, Flexeril, Norflex
- NPR 1st treatment-7->3
- NPR 5th treatment-6->4
- NPR Average-6.2->3
- Average dose-1200 mg.
- Average Duration of Pain Relief-4.06 weeks
- Maximum-5.1 weeks
- Minimum-2.7 weeks

Barriers to Care

- Economic
 - Fee codes:
 - May not exist
 - No fee code available for lidocaine pump
 - Applying for new codes is cumbersome and uncertain
 - May be inadequate
 - Unmonitored IV Lidocaine in Nova Scotia pays \$19.53. This applies to both clinic treatments and out-patient pump treatments

Barriers to Care

- Regulatory

- A fee code applies for IV Lidocaine in Nova Scotia. It requires:

- EKG Monitor

- BP Monitor

- Pulse oximeter

- Infusion pump

- Patients must stay in infusion area for 15 minutes after completion, then transfer to a recovery area for an additional 30 minutes

- It pays \$97.65, about the same as having a chip repaired on your windshield

Summary-IV Lidocaine

Disadvantages

- Drug must be given parenterally
- Loses effectiveness in presence of infection
- Prolonged use can elevate blood pressure
- Dose is critical, too little or too much is less effective
- Duration of action for brief infusion is only 2-5 days, for pump up to 8 weeks
- Fees are low
- Implementation is hampered by inappropriate regulations

Summary-IV Lidocaine

Advantages

- Good non-specific treatment
 - Effective
 - Economical
 - Minimally invasive
 - Well accepted by patients
 - No risk of addiction or dependence
 - Effectiveness improves with repeated treatments
 - Effective for hard-to treat ailments such as fibromyalgia