

Special Considerations When Using MIRE™

Anodyne Therapy FDA-cleared indications

- Temporarily increases circulation and reduces pain, stiffness and muscle spasm
- Like many physical medicine modalities, Anodyne Therapy is not cleared for the treatment of any specific diagnosis or condition

In your clinical decision-making, consider the known effects of Nitric Oxide (NO)^{1,2,3,4}

- Increases nutritional flow to the capillaries through local vasodilation of arteries and arterioles
- Reduces edema through increased venous evacuation and lymphatic motility
- Increases angiogenesis and improves delivery of other tissue growth factors
- Reduces pain directly and indirectly
 - Indirectly – By increasing circulation, thus reducing ischemia/hypoxia that is causing pain
 - Indirectly – By reducing inflammation/swelling that may be impinging on nerves to cause pain
 - Directly – Direct effect on nerves (morphine's analgesic effect works through nitric oxide pathway)
- Reduces muscle spasm that can compress blood vessels thereby causing ischemic pain
- Improves tissue range of motion and quality of remodeling

Focus your MIRE pad placement on the source of the clinical problem

- Identify where circulation is impaired. In general, initial pad placement should be at the proximal border and cascading distally with no gaps between the pads. As patient improves and the proximal border of the problem moves distally, move the pads following the proximal border.
- Assess arterial flow (pulses, ABI, skin color, turgor, temperature, refill time, etc.) and microvascular compromise. If there is a large vessel arterial blockage, identify the location of the blockage and treat proximal to and over that area and cascading distally with no gaps between the pads.
- If there is edema/inflammation/poor venous return, identify the proximal border of the edema. Place the therapy pads at the proximal border and proximal to the edema to create a negative gradient. Creating a negative gradient can help move excess fluid out of the edematous area. If patient has a known blood clot, have patient consult physician before treatment as exercise may be contraindicated in these patients.
- Identify the initial injury/source of the pain and treat this site. For example, if the source of the pain is in the lower lumbar region due to inflammation of soft tissues impinging on nerves, or pain that radiates down the lower extremity, treat the back/spinal cord and not the legs and feet. Treating the source of the problem is critical to achieving the best possible clinical outcomes.

Observe and use clinical judgment to adjust pad placement based on patient response

Increased Pain

If the patient's pain is increasing, then consider the following:

- If edema is present, it should be addressed.
- If there is ischemia, this pain will resolve over time if you treat proximal to the problem.
- Consider treating for shorter periods and/or at lower bar setting if patient is too uncomfortable, increasing treatment duration and/or bar setting as comfort improves.

Increased Swelling

Consider the following if a patient has increased swelling following treatment:

- A negative gradient must be created out of the edematous area.
- The increased circulation may be too great for the patient's cardiac/venous return capability.

Patient Not Improving

If after six treatments, the patient does not seem to be responding, consider the following:

- The source of the clinical problem has not been identified and treated.
- There may be an untreated problem causing the treatment failure (i.e., nutrition, infection, mechanical/structural)
- There may be co-morbidities that could be preventing improvement.
- If drugs/toxins are being used by the patient, then outcomes may be delayed (i.e. vasoconstrictive medications, alcohol, smoking, chemotherapy)

If none of these are applicable, consider the tools you are using to assess the patient as they may not be sensitive enough to detect changes. If not, consider using another type of assessment. Finally, listen to the patient as his/her subjective comments may be indicating improvement.

¹ Moncada, et al, New England Journal of Medicine, Vol 329(27), 1993: 2002-2012

² Wright, Nitric Oxide: From Menace to Marvel of the Decade, 1996

³ Ferreira, et al, European Journal of Pharmacology, 1991, 121:122

⁴ Michlovitz, Susan and Nolan, Thomas, *Modalities for Therapeutic Intervention, 4th Edition – Contemporary Perspectives in Rehabilitation*, 2005. p. 289