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# Follow Up Outcome Analysis Monochromatic Infra Red Radiation Treatment (Anodyne) For Peripheral Neuropathy

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# Abstract

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- ◆ This study is a survey of the outcomes experienced by 139 patients diagnosed peripheral neuropathy and treated in Team Rehabilitation's Physical Therapy clinics with anodyne (monochromatic infra red) and exercise.
- ◆ It is a follow up to a chart survey carried out in 2005 which produced two results.
  - 60% of patients (n=53) treated for 1 month or more with exercise and anodyne therapy reported reduction in pain, paraesthesia or numbness
  - 51% of the same sample showed measurable improvement in balance
- ◆ The purpose of this survey was to determine how long that relief lasts.
- ◆ The survey confirmed that 60% of patients receiving one month of therapy experience some relief.
- ◆ For most patients relief was short lived. However, 14% of the sample reported that relief had continued since the end of treatment.
  - These patients had been out of treatment for an average of 12 months. One patient was still experiencing improvement after 20 months.

# Patient Population – Survey Methodology

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- ◆ The initial population for this survey was 139 patients treated for diabetic or idiopathic peripheral neuropathy in Team Rehabilitation's physical therapy clinics between July 2004 and April 2006.
- ◆ The data were collected by a telephone survey.
  - Patients were telephoned three times.
  - If we were unable to speak with them within 3 tries we stopped contacting them
- ◆ We were able to interview
  - 56 patients in total
  - 42 who had received at least 12 treatments
    - » The previous study had shown that the percentage of patients experiencing relief of symptoms increased steadily until the 12<sup>th</sup> treatment
- ◆ The patients were asked questions on
  - Their initial symptoms
  - The extent of the relief provided by their treatment
  - How long that relief lasted

# Patient Population – Survey Methodology

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- ◆ The demographics of the 42 patients interviewed were:
  - 16 Male, 26 Female
  - Average age at time of treatment 71.0 years
    - » Standard deviation 12.3 years
    - » Oldest patient 89, youngest 36.
- ◆ On average the patients received 19.9 treatments spread over 7 to 8 weeks
- ◆ Treatments consisted of
  - Monochromatic infra red (anodyne) for 30 to 45 minutes
  - Balance exercises
  - Gait training
  - Stretching, strengthening and aerobic exercise
  - Soft tissue mobilization/massage

# The Science Of Anodyne

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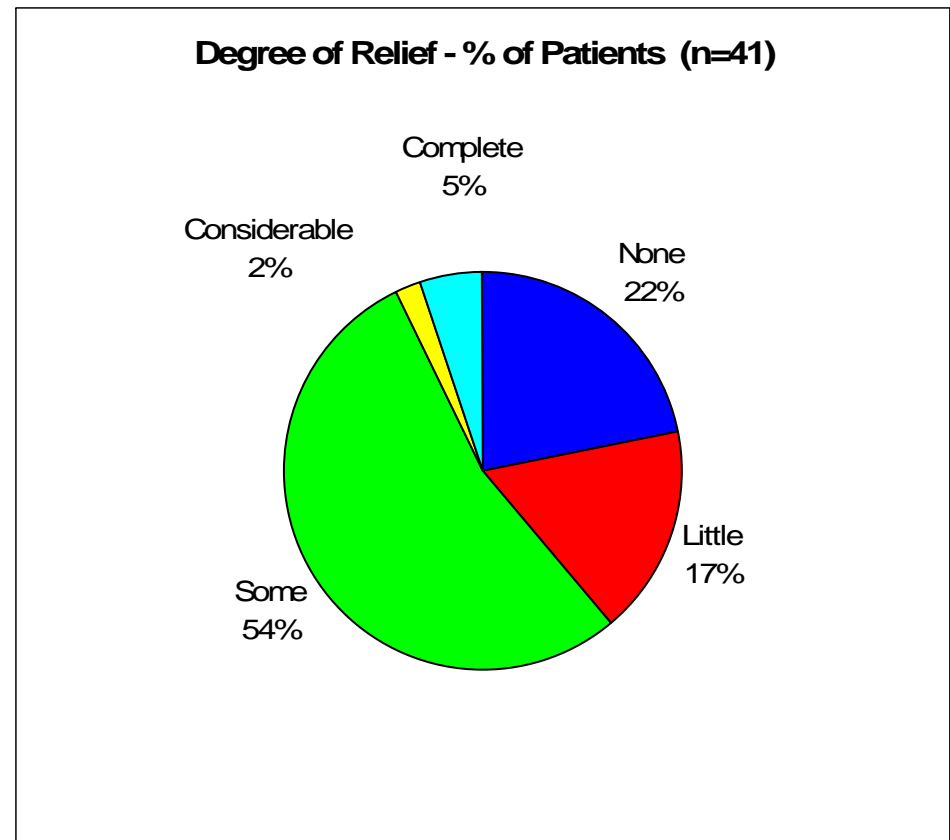
- ◆ The science behind anodyne therapy is not yet fully understood
- ◆ The following mechanism is proposed
  - 890nm (near infra red) penetrates skin and lean tissue fairly well
  - It is thought that it is absorbed by nitrosothiols in red blood cells causing breakdown and the release of NO which causes vasodilation.
  - Improved microcirculation as a result of monochromatic near infra red irradiation is well documented <sup>(1)</sup>
  - Improved nerve conduction has also been documented <sup>(2)</sup>, although it is not clear whether this is a secondary effect of improved circulation
- ◆ It is thought that improved circulation reduces damage to peripheral nerves resulting in improvements in balance and protective sensation

# Results

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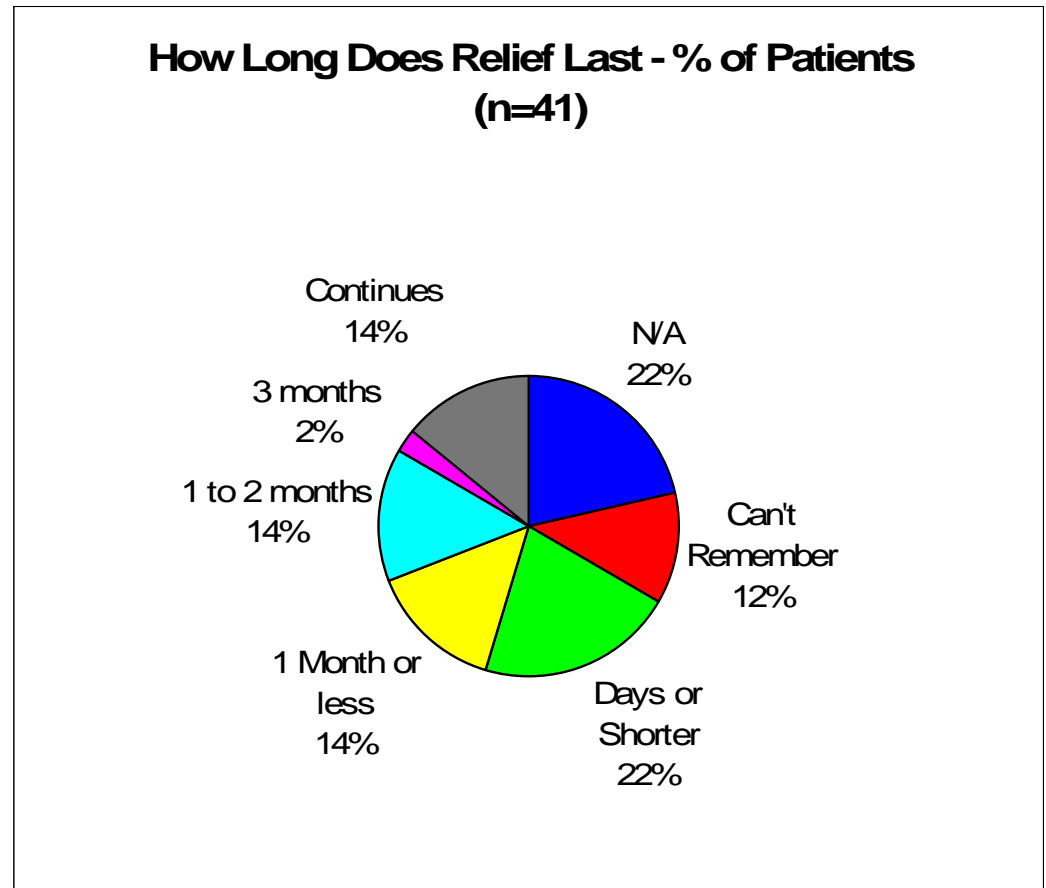
## ◆ Percent of patients experiencing relief

- The graph shows that 61% of the patients who had at least 12 treatments experienced some or considerable relief from their initial pain, numbness or paraesthesia
- This agrees with the previous study in which 62% of patients reported reductions in pain by the 12<sup>th</sup> treatment
- This increases the reliability of the results of both studies



# Results

- ◆ How long does the relief last?
  - The graph shows the breakdown of patients by length of time the relief lasted.
  - 22% of the patients reported that they experienced no relief during treatment. They are shown as N/A in the graph.
  - 30% of the patients experienced a reduction in symptoms that lasted more than one month.
  - 6 patients, 14% of the sample, were still feeling better at the time of their interview.



# Results

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- ◆ How long does the relief last?
  - The six patients experiencing continuing relief had finished treatment an average of 12 months before their interview
    - » The individual figures were 3, 8, 12, 13, 16 and 20 months
  - There was no correlation between the length of time the reduction of symptoms lasted and
    - » Patient age ( $P = 23\%$ )
    - » Gender ( $P = 47\%$ )
    - » Diagnosis (idiopathic vs diabetic peripheral neuropathy) ( $P = 31\%$ )
  - Number of treatments was significantly larger for patients reporting that relief lasted longer than 3 months ( $P = 1.3\%$ )
    - » Patients experiencing continuing relief averaged 27.0 treatments with a standard deviation of 3.3 treatments
    - » Patients reporting 3 or fewer months relief averaged 21.4 treatments with a standard deviation of 8.1 treatments

# Conclusions

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- ◆ Physical therapy including anodyne (monochromatic infra red) may be an effective treatment for peripheral neuropathy.
  - Neither of our surveys have been placebo controlled
- ◆ Approximately 60% of patients who remain in therapy for a minimum of 12 treatments will experience at least temporary relief of symptoms of pain, burning and paraesthesia.
- ◆ Approximately 14% of patients will experience reasonably long lasting (average 12 months) relief of symptoms. Longer lasting relief may only be seen in patients who have 25 or so treatments.
- ◆ These results are fairly encouraging as the patients treated had often suffered from peripheral neuropathy for years, and the majority were not getting relief from Neurontin or Lyrica
- ◆ We recommend considering PT for peripheral neuropathy patients who are not getting adequate control of symptoms from other treatments.

# References

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