

Reviewer's report

Title: Treatment of hemangiomas in children using an Nd - YAG laser in conjunction with ice cooling of the epidermis. Techniques and results

Authors:

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Reviewer: Dr James Tunnell

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

"Treatment of hemangiomas in children using an Nd - YAG laser in conjunction with ice cooling of the epidermis."

I. Vlachakis, S. Gardikis, E. Michailidou, and G. Charissis
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General comments:

The authors study the efficacy of epidermal cooling using ice during Nd:YAG treatment of hemangiomas in children. The study includes 110 patients aged 3 months to 4 years. Gross observation of the epidermis and measurements of lesion size are used to assess epidermal injury and lesion clearing, respectively. The authors seek to answer two main questions:

- 1) Does the use of ice decrease the risk of thermal injury to the epidermis during Nd:YAG laser treatment of hemangiomas, and
- 2) Does the combination of ice cooling in conjunction with Nd:YAG laser irradiation decrease the number of sessions necessary for successful clinical outcome.

This study showed "excellent" results in patients with "small" hemangiomas after only one treatment session, while larger lesions showed excellent results after two to three treatment sessions. The epidermis was spared from thermal injury in all but 5.5% of patients.

The authors have conducted an important study on the technique of using ice to improve Nd:YAG laser treatment of hemangiomas in children; however, as the manuscript is currently written, it is unclear whether the results support the conclusions that this technique reduces epidermal injury and the number of required treatment sessions. Because no control exists in this study (i.e. no patients were treated without ice), the conclusions depend on a close comparison of the results of this study to others in the literature. The manuscript would be greatly improved by expansion of this comparison discussion in the Discussion section. Overall, this is a very nice study with interesting results.

a) Discretionary revisions

1. Patients and Methods: Why was the size categorization chosen in this way?
2. Discussion - Lines 1-15: There seems to be limited information in these first lines that are relevant

to the current study. Consider revising for length.

3. Discussion: It would be nice to see some discussion of how the small sample sizes ($n = 2-4$) of the large hemangiomas (i.e. height B and C and Area b and c) affect the conclusions. Can we draw any conclusions about the larger lesions?

b) Compulsory revisions

4. Please pay careful attention to grammar. A few examples are listed below:

Title:

* Consider revising the phrase "...an Nd:YAG..." to "...a Nd:YAG..." in the title and throughout the manuscript.

Abstract:

* Line 9: Remove the comma between "ice" and "prior."

* Line 6: Consider revising the phrase "...required treat of these lesions" to "...required to treat these lesions."

Patients and Methods:

* Paragraph 1 - line 14: The phrase "...height was divided..." should be "...height, they were divided..."

* Paragraph 1 - line 10: Please be consistent with the use of the decimal indicator. At times you use the "," and at other times you use "."

* Paragraph 1 - line 12: "Each hemangiomas was..." should read "Each hemangioma was..."

* Paragraph 2 - 16: "Lesion remained lesion..." should read "...lesion remained after..."

Discussion:

* Please consider splitting paragraph 1 into several paragraphs.

* Consider revising the phrase "... nine-teen-sixty decade." to "... the nineteen sixties."

5. Abstract: The abstract states that the study was performed between 1994 and 2001 while the Patients and Methods section states 1993 to 2001. Please clarify.

6. Patients and Methods: The system for defining and determining the response of "excellent, good, moderate, and poor" should be described here.

7. Results: It is unclear how "percent reduction" was determined. Could you give the specifics of this calculation? This may belong in the Patients and Methods section.

8. Discussion: There needs to be more discussion of references 7 and 3. There should be more detail about how these manuscripts relate to the current study. For example: How many patients were in the Landthaler et al. study? Were the lesions similar to this study, and can we make a direct comparison? Were the laser powers and exposure times similar? There should be similar discussion for the Clymer et al. study. This should add great strength to your study by showing that you have improved clinical efficacy (i.e. decreased treatment sessions and protected epidermis) over previous work.

9. Discussion - Line 21: The statement "...cooling the lesions only during actual irradiation [20,21]" is incorrect. These studies use pre-cooling as well, delivering a cryogen spray to the skin prior to the delivery of the laser pulse. Please revise.

10. Discussion - Paragraph 2: What are "massive and deep hemangiomas"? Which category in Table 1 do they fall?

Competing interests:

None declared.