

# Letter To The Editor: A Novel Therapeutic Approach To Advanced Lung Cancer

L Shecterle, J St.Cyr

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## Abstract

The insight by Zwischenberger et al in their recent publication in the *Annals of Thoracic Surgery* investigated safety in the use of hyperthermia for treating stage IV lung cancer patients.<sup>1</sup> This feasibility study should be applauded. Based on reported yearly statistics of newly documented cases and mortality of this disease, there has been dismal progress in combating this malignancy.<sup>2</sup> Furthermore, advances in treatment survival or quality of life of patients afflicted with late stage lung cancer have been minimal. Many therapeutic options have been proposed and ones with scientific basis should be considered for these patients.

Hyperthermia has a very long history as a potential therapeutic option for an array of diseases. Hippocrates, centuries ago, proclaimed that the ability to induce heat could aid in treating any disease.<sup>3</sup> The concept of hyperthermia in treating diseases has continued throughout the centuries. Investigating the use of hyperthermia in "modern" medicine has continued from the 19<sup>th</sup> and well into the 21<sup>st</sup> century. Clinical centers treating diseases with hyperthermia are found in the United States with greater acceptance in Europe and the Far East.

Methods of whole body heat induction have varied. The use of bacteria (Coley's toxin) in elevating a patient's core temperature was successful, however, no precise control of or time to reach the desired elevation in core temperature was feasible. Therefore, methods for a refinement in establishing better control of core temperature elevation were sought. Chamber units, a non-invasive method, were developed before an invasive approach, such as the cardiopulmonary bypass circuit as reported by Zwischenberger et al. Both the non-invasive and invasive methods of heat induction utilize an external heat source to raise core temperature. Better control of core temperature was achieved by both induction methods, however,

controversy exists as to which method was more user friendly, more reproducible with fewer adverse reactions, and offers the best temperature control.

Obviously, besides efficacy, therapeutic safety is an equally important issue. Bacterial induction of whole body hyperthermia runs the risk of ultimately not being able to control temperature elevation, thereby placing a patient at increased risk of an adverse, including life threatening, event. Non-invasive devices appeared to help achieve better control in core temperature. The use of an invasive induction of whole body hyperthermia has been explored over the last half century. Recently, the modified use of a veno-venous partial bypass circuit, as described by Zwischenberger et al and previously by Zablow et al,<sup>4</sup> has received interest.

Investigations using either a non-invasive or invasive means of inducing whole body hyperthermia in the treatment of malignancies have had worldwide attention. Currently, there are established facilities that offer this as a therapeutic option in specific malignancies. The use of chemotherapy and/or radiation along with heat has been shown to achieve an increased benefit.<sup>5</sup>

In their paper, Zwischenberger et al reported acceptable safety and data reflecting a preliminary efficacious benefit in this patient population. This efficacious benefit in these end stage lung cancer patients suggests that this therapy may offer hope to these individuals that are faced with slim to no options. These results, using hyperthermia alone, may be further enhanced with the use of chemotherapy during treatment.

Hopefully, additional clinical centers will find these preliminary beneficial results reported by Zwischenberger et al encouraging enough to perform their own trial for conformation. Hyperthermia alone may substantiate the

findings by Zwischenberger et al; however, the addition of chemotherapy coupled with hyperthermia should be investigated.

## **References**

1. Zwischenberger JB, Vertress RA, Bedell EA, McQuitty CK, Chernin JM, Woodson LC: Percutaneous venovenous perfusion-induced systemic hyperthermia for lung cancer: A phase I safety study. *Ann Thorac Surg* 2004;77:1916-25.
2. American Cancer Society Statistics, American Cancer

Society, Inc. website, copyright 2004.

3. Shecterle LM, St.Cyr JA: Whole body hyperthermia as a potential therapeutic option, invited submission. *Cancer Biotherapy* 1995;10(4):253-256.
4. Zablow A, Shecterle L, Dorian R, Kelly T, Fletcher S, Forman M, Sanfilippo L, St.Cyr J: Extracorporeal whole body hyperthermia treatment in HIV patients, a feasibility study. *Int J Hyperthermia* 1997;13(6):577-586.
5. Robins HI, Hugander A, Cohen JD: Whole body hyperthermia in the treatment of neoplastic disease. *Radiol Clin North Am* 1989;27(3):603-10.

**Author Information**

**Linda M. Shecterle, B.S.**

Jacqmar, Inc.

**J.A. St.Cyr, M.D., Ph.D.**

Jacqmar, Inc.