AbstractID: 2947 Title: Non-contact, Non-invasive Breast Thermography Has Potential to Evaluate Treatment Response in Breast Cancer Patients

Purpose: The purpose of the study is to determine the feasibility of using Breast Thermography (BT) to improve the evaluation of treatment response in breast cancer patients.
Method and Materials: A protocol is underway at our institution that enlisted 17/30 breast cancer patients treated for: I) locally advanced breast cancer (LABC) on a phase I/II study of neoadjuvant chemotherapy (ChT) and hyperthermia (HT) (4/17); II) chest wall recurrence treated with radiation (RT) and HT (4/17); III) LABC treated with neoadjuvant ChT (2/17), and IV) chest wall recurrence treated with ChT (7/17). The patients are imaged before and after the completion of the prescribed treatment. Patients from group II were imaged before and at the end of each week of treatment. Six of the seven patients in group IV were either not due for follow up at the time of this report, or haven't reported yet. For the patients in group I, BT was used in conjunction with other imaging and pathologic studies to correlate the skin thermal signature with physiologic (perfusion, oxygenation) and pathologic (size, grade, hormonal receptor status, and lymphovascular invasion) characteristics of intact breast tumors. For patients in the other groups, either established imaging studies (MRI, PET), or clinical inspection was used to correlate and validate the BT data.
Results: Preliminary results demonstrate that the BT data correlates well with MR and PET. Thermographic changes in the breast as captured with a high resolution infrared camera correlate with treatment response as demonstrated by clinical exam and pathologic response (in patients where this data was available).
Conclusion: Breast Themography contributes additional information regarding treatment response than just visual clinical inspection in patients with chest wall recurrence or inflammatory breast cancer. This non-invasive, non-contact, cost-effective tool has potential for evaluating patients undergoing neoadjuvant therapies for breast cancer.