

## Are We Improving the Survival of Patients with Newly Diagnosed Inflammatory Breast Cancer?

Dr. Naoto Ueno



Our Breast Medical Oncology laboratory research group, Section of Translational Research and Morgan Welch Inflammatory Breast Cancer Research Program and Clinic.

Please note – This is only the Breast Medical Oncology portion of our group, many faces are missing!

The answer is “yes.” But, what is truly contributing to this survival improvement remains to be unclear. When patients with IBC present to MDA, they will first undergo imaging to find out exactly where the disease is located by PET-CT, mammogram, MRI mammography, and ultrasound. This is called “staging.” The problem is that 30% of the patients with newly diagnosed IBC may already have their diseases outside of the breast area “metastasis” (bone, liver, lung, etc.). PET-CT can help differentiate patients with and without metastatic disease. Thus PET-CT scan can improve the outcome of patients with IBC even without any therapeutic intervention. Also, PET-CT scan contribute to finding specific diseased spots such as the bone and/or a distant organ site (lung, liver). This offers the patients an opportunity to receive a definitive radiation and/or surgery of metastatic site that may result in a long-term control (not standard of care).

After defining the stage (the location of disease), we will provide the systemic therapy depending on the clinical trial availability or provide the best standard of care based on their molecular subtypes (HER2+, ER+, TNBC). We all know that the long-term outcome of inflammatory breast cancer clearly depends on the response to preoperative chemotherapy. Those patients who achieved a pathological complete response (pCR) will live longer. And those who did not achieve a pathological complete response have a higher chance for disease to recur. The ongoing research effort is to improve this systemic regimen before surgery so a higher pathological complete response is achieved. The second effort is to understand why some patients do not show pathological complete response and bring in new management that will reverse resistance to the treatment. Some of the effort is to understand minimal residual disease after patient receives prophylactic chemotherapy.

Conducting a bone marrow biopsy and aspiration, or measuring circulating tumor cells in the blood, will allow us to understand the overall prognosis of inflammatory breast cancer. If one could actually eradicate this minimal



residual disease, there is a great possibility that we may be able to prevent patient recurrence at distant metastatic sites. I would say that major research efforts by many of our investigators involved in inflammatory breast cancer has now allowed us to conduct many clinical trials. We are very much excited about our progress and we will be expecting to see more improvement in the survival of our patients with inflammatory breast cancer.

The other major reason for the survival improvement is due to the dedicated clinical team taking care of our patients with IBC. At MD Anderson Cancer center, when a patient presents to our clinic, we will have all three disciplines see the patient within 5 business days. This means that patients have a chance to be seen by an IBC specialized surgeon, radiation oncologist, and medical oncologists prior to systemic treatment. It is critical that all these disciplines see the patient because this will give us an understanding of the exact size of the tumor and extent of the disease, thus helping us provide the best local treatment outcome.

Most other places have surgeons and radiation oncologists, but they see their patients toward the end of completion of the preoperative chemotherapy. This is not optimal because the redness of the skin noted in the inflammatory breast cancer does not always mean that there is a disease. Second, normal appearing skin may have the disease. Therefore, for the radiation oncologist and the surgeon to map the disease site even before proceeding with the systemic treatment is very essential. This team approach for IBC provides the best care for our patients. We truly believe that this team approach has resulted in the outcome improvement of our patients with IBC.

If you are a patient with inflammatory breast cancer, it is very important that you receive a team approach care from our IBC specialized physicians. Further, because standard care is not always optimal, it is very important to seek our expertise in directing you to appropriate clinical trials.

## Inflammatory Breast Cancer and Reconstruction

Dr. Edward Chang

The MD Anderson Morgan Welch Inflammatory Breast Cancer Research Program and Clinic is excited to have Dr. Ed Chang, MD, Assistant Professor in Plastic Surgery, as a member of our program. Dr. Chang's research looks to optimize reconstruction for inflammatory breast cancer patients including both breast reconstruction and treatment for lymphedema.

Inflammatory breast cancer is a rare but aggressive type of breast cancer that has traditionally been associated with a poor prognosis and long-term survival. However, with the advances in early detection, imaging, and adjuvant therapies, the treatment of inflammatory breast cancer has changed remarkably leading to improved cure rates and survival. The treatment of breast cancer, including inflammatory breast cancer, is not limited to the treatment of the disease, but also encompasses restoring patients their identity and sense of self.

Historically, reconstruction was not offered to patients diagnosed with inflammatory breast cancer; however, we have demonstrated that this dictum is no longer valid. With the support of the Morgan Welch Inflammatory Breast Cancer Foundation, patients who have completed treatment are now candidates for reconstruction. We have demonstrated high success rates reconstructing patients using their own tissue and have the largest experience in the nation. Not only are we able to offer patients breast reconstruction, but we also have the ability to address the lymphedema that is often seen following surgery and treatment. This changing paradigm offers patients hope to improving quality of life and restoring patients who have been diagnosed with inflammatory breast cancer that has never been done before.

A classic mantra that governs the field of reconstructive plastic surgery from Gaspare Tagliacozzi has never echoed more truthfully than for our patients. "We restore, rebuild, and make whole those parts which nature hath given, but which fortune has taken away. Not so much that it may delight the eye, but that it might buoy up the spirit, and help the mind of the afflicted."

## Recent Program Awards

**Carisa Le-Petross, MD**, Associate Professor in Diagnostic Radiology was recently accepted as a Fellow in the Society of Breast Imaging. Dr. Le-Petross is also the Morgan Welch IBC Program Core Leader for the Diagnostic Radiology area. The Society of Breast Imaging was created in 1985. Fellows must have authored publications on clinical or research aspects of breast imaging, been recognized as a teacher in the area of breast imaging, and/or been recognized for clinical expertise in breast imaging at the regional or national level.

**Adam Wolfe, PhD**, successfully defended his PhD titled, "Investigating the role of cholesterol metabolism and synthesis in metastasis and radiation response in aggressive subtypes of breast cancer". In this paper, he identifies a new approach to make radiation work better in IBC.

**Xuemei Xie, PhD**, received the Bayer Healthcare Pharmaceuticals, Inc. Award in Translational Research at the 2015 Trainee Research Day. She received this award for the development of the JNK inhibitor in TNBC.

**Bisrat Debeb, PhD**, placed first (out of 32) for his poster titled MicroRNA 141: a novel regulator of brain metastasis from breast cancer at the 2015 Professional Development Workshop organized by the National Cancer Institute

Congratulations, to all!

## Quarterly Oral Presentations

### **TFG- $\beta$ and TNF- $\alpha$ Activates Gene Transcription Programs Associated with Poor Breast Cancer Prognosis**

Kazuharu Kai, PhD

Instructor, Breast Medical Oncology

### **Toll-Like Receptor 4 a regulator of the Integrity of Multicellular Spheroid Architecture**

Geoffrey Bartholomeusz, PhD

Associate Professor, Experimental Therapeutics

## Recent Publications

### **Lymph Node Status in Inflammatory Breast Cancer**

Welela Tereffe, MD,

Associate Professor, Radiation Oncology

View article here: <http://bit.ly/1NfeS4g>

### **Circulating Tumor Cells in Newly Diagnosed Inflammatory Breast Cancer**

James Reuben, PhD

Professor, Hematopathology

View article here: <http://bit.ly/1GKITav>

### **Overall Survival Differences Between Patients with Inflammatory Breast Cancer and non-Inflammatory Breast Cancer Presenting With Distant Metastasis at Diagnosis**

Naoto Ueno, MD, PhD

Professor, Breast Medical Oncology

View article here: <http://bit.ly/1KdbDuS>



## Current Clinical Trials Open for New Patient Enrollment

- 2006-1072 IBC Registry**
- 2010-0842 A phase I Entinostat and Lapatinib + Herceptin HER2+ MBC failed Herceptin**
- 2011-0930 Randomized phase II double blind study of VPA vs. placebo to shorten time of indwelling pleural catheter**
- 2012-0399 Beliparib with postmastectomy radiotherapy (Phase I)**
- 2013-0007 Phase II study of denosumab to define the role of bone related biomarkers in patients with breast cancer and bone metastasis**
- 2013-0139 Phase IB trial of two folate binding protein peptide vaccine (E39 and J65) in breast and ovarian cancer patients**
- 2013-0436 Combination immunotherapy with Herceptin and HER2 vaccine E75 in low and intermediate HER2 expressing breast cancer patients to prevent recurrence**
- 2014-0464 A phase II study of BIBF-1120 (Nintedanib) for patients with HER2 normal metastatic inflammatory breast cancer**
- 2014-0533 A phase II study of anti-PD1 (MK-3475) therapy in patients with metastatic inflammatory breast cancer who have received prior chemotherapy with clinical response**
- ECOG E2108 A randomized phase III trial of the value of early local therapy for the intact primary tumor in patients with metastatic breast cancer**

## Current Lab Studies Open for New Patient Enrollment

- PA12-0097 Prognostic Utility of CTCs Assessed by Adnagen Technology and Clinical Outcome of Patients with Stage III Breast Cancer**
- PA12-0453 EpCAM-CTC-EMT**
- PA12-0728 TIL for TNBC and IBC**
- PA12-0860 Assessing feasibility of sentinel lymph node increase dissection in IBC**
- PA14-0772 Deviation of patient derived xenograft tumor models from isolated CTC from breast cancer patients (IBC/TNBC)**
- PA14-0778 Gene profiles in androgen receptor-positive CTC in patients with metastatic breast cancer**

If you are interested in learning more about our clinical trials, or lab studies, please email the Morgan Welch Inflammatory Breast Cancer Research Program and Clinic directly at [ibcp@mdanderson.org](mailto:ibcp@mdanderson.org). We are happy to provide general information and eligibility guidelines for our clinical trials and lab studies.

