Abstract
Global Cardio-Oncology Summit 2017

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Aim
The aim of the project is to study the changes of endothelial function and metabolic parameters in patients receiving chemotherapy for early stage breast cancer (BC), and to compare these parameters with healthy age matched controls.

Background
The past 30 years survival of BC patients has improved substantially. With increasing number of cancer survivors, more attention is presently being drawn to long-term consequences of curative cancer treatment. Several cytotoxic regimens have provided evidence of endothelial cell damage and vascular toxicity. Endothelial dysfunction is an important surrogate marker of atherosclerotic activity, and has been implicated in the pathogenesis and clinical course of all known cardiovascular diseases (CVD). Emerging evidence indicates that CVD and diabetes may play a pivotal role, because it contributes importantly to the mortality among BC survivors.

Study design
The study is a clinical case-control study. Women (N=35) diagnosed with primary, operable non-metastatic BC eligible for adjuvant therapy are characterized regarding age, smoking status, concurrent medication, BMI, body composition, blood pressure, metabolic parameters, and endothelial function. Patients are examined 3 times; prior to adjuvant therapy (baseline), immediately after completion of adjuvant chemotherapy, and 1 year after completed chemotherapy. Patient data will be compared to healthy, age-matched controls.

Results
Preliminary data from our group have demonstrated that endothelial function is, indeed, affected by adjuvant chemotherapy. Thus, immediately subsequent to treatment, endothelial dependent flow is increased, possibly through acute inflammatory mechanisms, ultimately leading to impaired endothelial function 1 year after treatment. Furthermore, we see significantly pathological changes in the lipid profile of our patients.

Impact
If our results turn out to be significant, we demonstrate that cytotoxic therapy causes endothelial dysfunction and dyslipidemia, thus rendering patients at risk of developing CVD. This may negatively affect the benefit obtained by cytotoxic therapy, as these patients are expected to survive their cancer disease. These principles may be applicable to other cancer patients receiving cytotoxic therapy.