BACKGROUND
Chemotherapy-induced alopecia (CIA) is a common adverse event of various breast cancer protocols. It causes impairment in quality of life, with a negative impact on self-image. Some patients refuse chemotherapy in reason of alopecia.4

Several studies have been developed in the attempt to prevent CIA. Currently, scalp cooling is the method that presents the greatest chances of success.5 Around 50% of women with breast cancer show satisfactory hair preservation with scalp cooling during chemotherapy.4 It has commonly been assumed that the mechanism of hair preservation with scalp cooling is due to the vasoconstriction caused by low temperatures (between 18-24°C, subcutaneous), reduction of hair follicle metabolism and decreased absorption of chemotherapy in hair follicle cells.6

Scalp cooling is generally considered successful when hair loss is less than 50% (alopecia grade 0 or 1 by CTCAE v4.0), a rate in which no wig or scarf is normally required.7 Several factors are associated with success in the process of the treatment: correct cap adjustment on patients head, the lowest temperature reached on scalp, type of chemotherapy regimen (combination of drugs, dose/schedule/patient characteristics) In clinical practice, the most common limiting factors for the use of scalp cooling are the pain caused by cooling and the cold sensation. The hair loss that occurs throughout the sessions can bring high level of anxiety, with withdrawal of the procedure.

OBJECTIVES
- To assess the efficacy of scalp cooling in preventing CIA among women receiving chemotherapy for breast cancer;
- To evaluate the causes of scalp cooling withdrawal and the adverse events of the procedure.

METHODS
The data of breast cancer patients from Oncolínicas Group was collected from July/2015 to March/2017. All patients were eligible for scalp cooling procedure. Cooling started 30 minutes before infusion of the chemotherapy and was maintained throughout the duration of the treatment and extended for 90 minutes after infusion finished. Degree of hair loss was rated by nursing assessment using CTCAE v4.0 scales in grade zero (without alopecia), 1 (<50%) or 2 (>50%), by digital photographs and clinical assessment. Assessments were made before each chemotherapy treatment and at a follow up visit before the next chemotherapy cycle and 3 months after the completion of chemotherapy. Success was defined when there was G0 or G1 alopecia at the end of treatment, and failure when finished with G2 alopecia or for patient withdrawal due to alopecia.

RESULTS
72 patients (21.6%) withdrew from cryotherapy due to alopecia of any degree, 51 patients (15.4%) gave up cryotherapy because of complaints unrelated to alopecia and 19 patients (5.8%) had their treatment interrupted due to external factors (disease progression, change of chemotherapy regimen, among others). Among patients who completed chemotherapy (n = 188), the degree of alopecia at the end was: G0 = 27; G1 = 138; G2 = 23. Thus, the overall success rate with cryotherapy was 63.5%. Chemotherapy protocols initiated with doxorubicin and cyclophosphamide, followed by taxanes, had a success rate of 55%. The combination of doxorubicin and cyclophosphamide showed success of 71.9%. In addition to alopecia, headache and cold sensation were common reasons for cryotherapy withdrawal.

CONCLUSIONS
Scalp cooling appears to be effective in preventing CIA among breast cancer patients who underwent chemotherapy. Studies involving a psychological approach for the expectation and experience of alopecia, 5 different cryotherapy and better management of pain are necessary to increase adherence to treatment.

REFERENCES
2. Batchelor D. Hair and cancer chemotherapy: consequences and nursing care – A literature study. GSA / Carcer Corp (Sing) 2011; 103: 147– 159