AbstractID: 2099 Title: Sparing of cardiac tissue using Elekta's Active Breathing Control Device for treatment of patients with left sided breast cancer

Cardiac toxicity resulting from left breast radiotherapy is a late complication affecting patient survival and may be caused by radiation damage. Reduction of heart tissue present in the radiation field can be accomplished using various immobilization systems such as the Elekta Active Breathing Control (ABC) device. With the ABC device, inspiration increases lung volume and creates a greater distance between the chest wall and heart, thus reducing its volume in the radiation field. Results from a study of 10 patients entered on a clinical study using the ABC device are presented to demonstrate the effectiveness of this device in the reducing radiation exposure to the heart, left ventricle, and lung. The following dosimetric parameters were analyzed with and without the use of ABC device: volume of heart, a portion of the heart representative of the left ventricle and lung receiving 100% and 90% of the prescription dose; and volume of heart and lung receiving a dose of 40 Gy and 20 Gy respectively. For 5 of the ten patients, the use of the ABC device spared the entire heart and ventricle from receiving a dose that is higher than 80% of the prescription dose. Heart volumes that were initially found to exceed 40 Gy for these five patients were eliminated with the ABC. The use of the ABC device did not make any observable difference in the volume of lung irradiated.