Lymph Node Radiotherapy Emerges as the Preferred Treatment for Breast Cancer Patients with Positive Nodes

New treatment paradigm shows significantly fewer side effects

Abstract: Axillary lymph node dissection versus axillary radiotherapy; a detailed analysis of morbidity.
(Using data from the AMAROS (After Mapping of the Axilla Radiotherapy or Surgery? Trial)

April 30, 2014, Las Vegas--A groundbreaking prospective international study presented this week at the American Society of Breast Surgeons (ASBrS) Annual Meeting found that lymph node axillary radiotherapy (ART), an emerging treatment protocol for tumors affecting the lymph nodes, is associated with significantly fewer complications than traditional axillary lymph node dissection (ALND) or removal. The study was conducted by the European Organisation for Research and Treatment of Cancer (EORTC).

The 4806-patient trial found that at one year after treatment, lymphedema rates were 15% for the ART group, 25% for the ALND patients and 59% for those receiving both therapies. At five post-treatment, the condition was present in only 10% of ART patients, compared to 21% of those treated with ALND and 58% of the combination therapy group. Arm lymphedema is a debilitating condition involving lymph fluid retention and tissue swelling common among breast cancer patients following node dissection.

The study also found that the incidence of short-term side effects such as post-treatment infection, hemorrhage, early edema and persistent seroma among patients was 9% for the ART group and 23% for the ALND group. Arm paresthesia was observed in 9% of ART and 10% of ALND patients. The study was conducted between 2001 and 2010, with an average time to follow up of over six years.

“These are extremely important findings that may change surgical guidelines and offer better quality-of-life for many, many women. This is particularly true for younger patients, who would otherwise live with the difficult side effects of node surgery, such as lymphedema, for a long time,” comments lead
researcher Mila Donker, MD, Netherlands Cancer Institute, Antoni van Leeuwenhoek Hospital. “The study involved almost 5,000 women from various countries with differing standards-of-care, so the study really reflects the real world clinical practice. It has important implications for treatment going forward.”

In the study, shoulder mobility decreased temporarily in both treatment groups, particularly during the first year. Those treated with more extensive ALND or specialized supraclavicular radiotherapy following surgery suffered greater mobility loss, compared to the ART group. However, women with less extensive ALND showed superior shoulder movement compared to the ART group one year after their procedure.

The authors conclude that for patients with positive sentinel nodes, ART is the preferred treatment over ALND given the overall morbidity. A combination of surgery and radiation increases side effects and should be avoided if possible.

“I believe that as a result of this trial, radiotherapy of the nodes will begin to replace surgery,” says Dr. Donker. “The results are that definitive and significant for patients’ quality-of-life.”
Abstract

Presenter: Mila Donker
Institution: Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital

Title: Axillary lymph node dissection versus axillary radiotherapy; a detailed analysis of morbidity.

Objective: The AMAROS (After Mapping of the Axilla: Radiotherapy or Surgery?) trial was an international, prospective, multicenter trial randomising breast cancer patients with a positive sentinel node (SN) between axillary lymph node dissection (ALND) or axillary radiotherapy (ART) including the medial part of the supraclavicular fossa. The current study analyzed the morbidity including the predictive value of treatment factors.

Methods: Of all 4806 patients enrolled between 2001 and 2010, patients with a positive SN who received axillary treatment were included in this analysis. The incidence of surgical complications (infection, hemorrhage, early edema, and persistent seroma) was analysed, as well as the presence of paraesthesia of the arm. Lymphedema and shoulder mobility were analysed at 1 and 5 years follow-up, by treatment received (at one year for edema: ART n= 406, ALND, n= 387 or ALND+ART n=27). Lymphedema was analysed as reported by the investigator (yes/no). Shoulder mobility was analysed using the range of motion (anteversion, retroversion, abduction and adduction), comparing the ipsilateral side to the contralateral side. The predictive value of patient related factors as well as treatment factors (extent of ALND, the addition of radiation to ALND) was analysed in a multivariate model.

Results: Surgical complications were observed in 23% of the patients in the ALND-group versus 9% in the ART-group (P<0.001). Paraesthesia of the arm was observed in 10% of the patients in the ALND-group and 9% in the ART-group. Lymphedema at 1 year post-treatment in patients treated with ART, ALND and ALND+ART was recorded in 15%, 25% (p<0.001 vs ART), and 59% (P<0.001 vs ART) of the patients respectively. After 5 years these rates were 10%, 21% (P<0.001 vs ART) and 58% (P<0.001 vs ART). Independent risk factors for the development of lymphedema within the first year were treatment with ALND (vs ART; OR 2.2) or ALND+ART (vs ART; OR 7.6), a BMI > 25, premenopausal status and treatment on the dominant side.

Shoulder mobility decreased temporarily, in particular during the first year in both treatment arms. Independent risk factors for reduced abduction, anteversion and/or retroversion at 1 year post-treatment were the addition of isolated supraclavicular radiotherapy after ALND, and a more extensive ALND (level I+II+III). An ALND level I+II-only showed a better shoulder function compared to ART after one year.

Conclusions: Post-operative complications and lymphedema were significantly higher after ALND than after ART. Combining ALND and ART further increased the risk of lymphedema. Patient-related factors contributed to a higher risk of lymphedema, but not to reduced shoulder mobility. The latter was influenced by the type and extent of the axillary treatment. Considering overall morbidity, ART is the preferred treatment over ALND in patients with a positive SN. Since the combination of axillary surgery and radiation increases morbidity, this should, if possible, be avoided.