Accuracy of the Extent of Axillary Nodal Positivity Related to Primary Tumor Size, Number of Involved Nodes and Number of Nodes Examined

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Background:
As radiation therapy's utility becomes more established in the breast conservation and post-mastectomy setting, the issue of axillary lymph node status remains in the forefront in directing treatment recommendations. Specifically, patients with four or more positive axillary lymph nodes are considered at high risk for regional failure, thus leading to the recommendation of RT to the regional lymph nodes in addition to the breast or chest wall. This study examines the relationship of the extent of axillary nodal positivity to primary breast tumor size, number of involved nodes and number of nodes examined.

Materials and Methods:

● In a nearly 20 year span, over 1600 women with stage I - II breast cancer were reviewed.
● All had more than 10 axillary lymph nodes (ALN's) were examined histologically (median = 17)
● A mathematical model was created to estimate the probability of four or more positive lymph nodes in a level I - II dissection.

Results:

● The probability of having four or more positive ALN's, when 1 - 3 were found positive in an ALN dissection consisting of a certain number of ALN's taken, was demonstrated in tabular form on the abstract.
● The greater number of ALNs found positive (between 1 - 3) lead to a requirement that a greater number of ALNs be sampled.
● For T1 tumors: A) One ALN positive requires eight or more ALN's must be sampled in order to have 10% or less chance of eventually finding four or more positive ALN's. B) For three ALN's positive, over twenty needs to be sampled to again reduce the risk to less than 10%.
● For T2 tumors: A) One ALN positive requires ten or more ALN's to be sampled in order to have 10% or less chance of having four or more positive. B) For three ALN's positive, even twenty only reduces the rate to 13%.

Clinical/Scientific Implications:
● The true accuracy of ALN status as it pertains to number of ALN's positive is related to the number of ALNs found positive, number ALNs sampled and primary tumor size.
● This model provides helpful guide as to completeness of prognostic information obtained from any one ALN dissection.
● It would be helpful to confirm this model on a similar cohort in the future.
● Once confirmed, this proposed model may help oncologists arrive at treatment recommendations, in light of sentinel lymph node biopsies and limited ALN dissections. ASTRO coverage is sponsored, in part, by Varian Medical Systems, Inc.