IS SENTINEL NODE MAPPING IN CERVICAL CANCER COST EFFECTIVE? BEYOND THE DETECTION OF NODE METASTASIS

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CONCLUSIONS
We found that the implementation of SLN mapping procedure not only increases metastatic nodal detection rates but also seems to decrease the cost per positive LN patient by US$ 309 in the same cohort and US$ 634 when compared to a historical series.

INTRODUCTION
The standard procedure early-stage cervical cancer is still radical hysterectomy with pelvic lymph node dissection. However, as the entire lymphatic basin is resected, it is associated with great morbidity, such as vascular injury and increased blood loss, increased surgery length time, nerve injury, lympho cysts, deep venous thromboembolism, and lately lower limb lymphedema. On the other hand, the prevalence of LN metastasis in surgically staged cervical cancer is relatively low, and estimated to be 15% or less.

The role of sentinel node (SLN) mapping in cervical cancer is still on debate. Our aim was to evaluate the cost effectiveness of sentinel node (SLN) procedure in cervical cancer using only blue dye.

METHODS
The study included 57 patients who met the FIGO staging criteria from IA2 to IB2, treated at AC Camargo Cancer Center from May 2014 to July 2016, and underwent SLN mapping using patent blue dye followed by systematic bilateral pelvic lymphadenectomy (SLN Group). These patients were compared to a series of 141 patients that had bilateral pelvic lymphadenectomy from June 2007 to April 2014 (LND Group). Standard H&E analysis of each lymph node was estimated to cost US$ 5 and for each SLN the estimated cost was US$ 60 (including immunohistochemistry-IHC). For cost analysis, we considered SLN cost found in a hemipelvis (hemipelvis cost = SLN dissected X US$ 60). When SLN was not found in a hemipelvis, all nodes dissected were considered (hemipelvis cost = number of nodes dissected X US$ 5).

RESULTS
For SLN group, median SLN count was 2 (range, 1-8) and median total lymph node (LN) count 23 (range, 6-81). Forty-seven (82.5%) patients had at least 1 SLN detected. Bilateral pelvic detection was found in 29 (50.9%) cases, and 18 (31.6%) had unilateral pelvic detection. We found metastatic LN in 13/57 (22.8%) patients and in 10/47 (21.3%) of patients with SLN detected. In 3 (6.4%) cases the SLN was positive only after IHC. Considering the 57 patients, the overall cost of LN analysis was US$ 6,642 – US$ 2,137 for 18 unilateral detection, US$ 3,480 for 29 bilateral detection, and US$ 1,025 for 10 patients with no SLN detected. As 13 positive nodes were found, the cost was US$ 511 per positive node patient. For these 57 patients, the cost of a full LND (median LN count of 23) would be US$ 6,555. As 3 patients had LN detected only by IHC, 8 LN positive would be found resulting US$ 819 per positive LN patient.

For LND group, the median LN count was 36 (6-91), as some patients also had para-aortic node dissection. Twenty-two (15.6%) had positive LN, but did not statistically differ from node positivity of SLN group (p=0.22). The overall cost was US$ 25,380, resulting US$ 1,145 per positive LN patient.

Figures 1 and 2. Microphotography showing a 0.55mm micrometastasis found only after immunohistochemistry