Management of clear cell ICG mapped sentinel lymph-node biopsy in endometrial cancer: analysis of surgeons’ learning process

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Introduction/Background The aim of this study was to analyze the surgeons’ learning process for indocyanine green (ICG) mapped sentinel lymph-node biopsy (SLB) in endometrial cancer (EC) patients.

Methodology Prospective study was conducted in a centre with no previous experience on ICG mapped SLB. 190 EC patients underwent laparoscopic hysterectomy with SLB (and additional lymphonodectomy in intermediate and high-risk groups). All surgeries were performed by 8 oncogynaecologists. The tabular cumulative sum (CUSUM) charts with sequential probability ratio test (SPRT) limits were plotted for each surgeon to evaluate the bilateral SL identification (target rate 75%) and removal of SLs containing lymphatic tissue (target rate 90%).

Results At least one SL per hemipelvis was mapped in 89.5% (170/190) of the patients. Bilateral mapping rate was 70.5% (134/190). The cumulative successful bilateral mapping rate tends to improve with the experience gained performing the SLB (Spearman’s rho 0.728; p < 0.001). The CUSUM plot for bilateral SL mapping showed that the primary SPRT limit was crossed only by one surgeon after 13 consecutive, successfully bilaterally mapped SLB. The result was achieved after 30 SLB procedures. 305 SL samples were mapped and removed. After final histological evaluation in 10.5% (32/305) no lymphatic tissue was found. The overall rate of lymphatic-tissue containing SL samples was 89.5%. The CUSUM plotted for removal of SLs containing lymphatic tissue showed that SPRT limit was crossed by 5 surgeons after 6 consecutive lymphatic tissue containing SL specimens. Other two surgeons crossed the SPRT limit after the removal of 11 and 20 SL specimens, while one surgeon reached the limit after removing 71 SL specimens.

Conclusion The CUSUM plots indicates that bilateral mapping of SL in endometrial cancer patients was achieved after 30 SLB procedures performed. However, the successful identification and removal of lymphatic tissue containing SL specimens was achieved after 6 consecutive procedures.