

Title: From Low to High Volume: Insights on Building a Transvenous Lead Extraction Program

Background: Transvenous lead extraction (TLE) is associated with better outcomes in high-volume (HiV or >30 TLE/year) than in low-volume centers. Little data exists regarding transitioning to a HiV TLE center. We examined the impact of strategic interventions at a tertiary care center during the transition to a HiV TLE facility.

Methods: Consecutive patients who underwent TLE with leads >1 year from implantation from 2012-2021 were reviewed. The primary endpoints were TLE clinical success and major complications including procedure-related mortality, vascular laceration, pericardial effusion, and emergent cardiothoracic surgery. Outcomes were compared between TLE completed prior to strategic interventions in 2012-2018 (n=125) and after intervention in 2019-2021 (n=127).

Results: There were 252 consecutive TLE procedures involving 398 leads included for analysis. Strategic interventions were implemented in 2018 (Figure). Annual mean TLE volume increased from 19.5 TLE (29.7 leads) to 42.4 TLE (69.7 leads). Baseline characteristics including patient age (62.4 ± 14.7 vs 61.9 ± 17.4), gender (52.4% vs 47.7% male), and infectious indications (33.6% vs 35.4%) were similar ($P > 0.05$ for all). With the transition to a HiV center, there was no significant difference in complete procedural success (84.0% vs 85.8%, $P = 0.73$) or clinical success (94.4% vs 96.1%, $P = 0.57$). Major complications significantly decreased from 10/125 (8.0%) to 3/127 (2.4%) after the interventions in 2018 ($P = 0.049$).

Conclusions: Multidisciplinary approaches including improvements in procedural risk stratification, scheduling, and technique resulted in a successful transition from a LoV to a HiV TLE center with a reduction in major complications while preserving a high procedural success rate.

Figure:

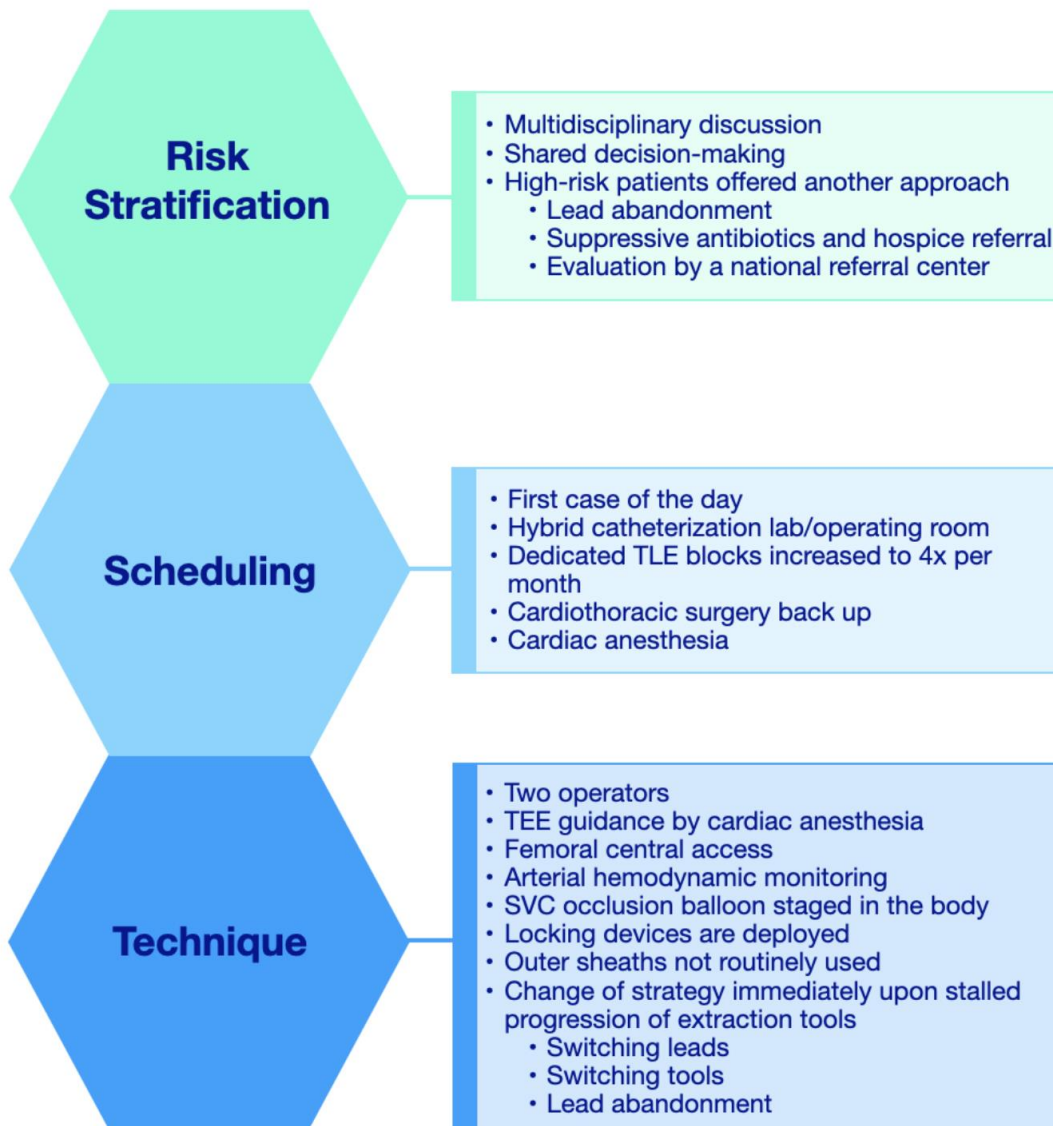


Figure: Strategic changes in TLE pre-procedure risk stratification, scheduling, and technique. TLE = transvenous lead extraction, TEE = transesophageal echocardiography, SVC = superior vena cava