Oral Abstract 12: The coverage gap: The impact of economic factors on the utilization of standard-of-care brachytherapy in locally advanced cervical cancer

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Topic
Cervical

Objectives
Intracavitary brachytherapy (ICBT) with radiation therapy (RT) improves survival in locally advanced cervical cancer (LACC). Recent studies outlined factors implicated in decreased ICBT use but did not capture economic aspects. Demographic and financial factors associated with ICBT utilization were examined.

Methods
A retrospective cohort study was conducted using the Merative Marketscan claims database. Female patients with LACC undergoing definitive treatment from 2015-2021 were included. Patients with prior hysterectomy, metastatic disease, or secondary malignancies were excluded. RT was identified with procedure codes within 90 days of initial diagnosis. Radiation oncologist density (ROD) was defined as provider-to-patient ratios for metropolitan statistical areas and categorized into tertiles. Associations between patient factors and ICBT use were assessed with chi-square tests. Temporal trends were evaluated with the Cochran–Armitage test. Multivariable logistic regression identified factors associated with use of ICBT versus non-ICBT RT.

Results
Of 2,555 eligible patients, 1,218 (47.7%) received ICBT and 1,337 (52.3%) received non-ICBT RT. ICBT use remained stable over time (48.7% in 2015–2018 vs. 46.0% in 2019–2021; p=0.20). In unadjusted analyses, age, concurrent chemotherapy (CC), and ROD were significantly associated with ICBT use (all $p < 0.01$). In adjusted analyses, ICBT use was independently associated with ROD, CC, insurance plan type, age, and employment status. Compared to low-density areas, medium-density areas had higher odds of ICBT (aOR 2.26, 95% CI 1.72–2.97), while high-density areas had lower odds (aOR 0.69, 95% CI 0.51–0.92). CC was strongly associated with ICBT (aOR 9.64, 95% CI 6.59–14.10). Relative to other plan types, HMO (aOR 2.06, 95% CI 1.47–2.87) and PPO (aOR 1.47, 95% CI 1.16–1.87) plans were associated with increased ICBT use. Older age and part-time/retired employment status were associated with lower odds of ICBT.

Conclusions
After adjustment, insurance plan type, CC, age, employment status, and ROD were independently associated with ICBT use. The association with CC is clinically consistent with ICBT in definitive chemoradiation for LACC. Nonlinear variation in ICBT use with ROD and variation by insurance plan suggest that structural financing factors may influence RT modality.

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