

PP16

RISK ASSESSMENT FOR UNDERTREATMENT IN FOCAL THERAPY AND ITS APPLICABILITY TO INTERMEDIATE- AND HIGH-RISK PROSTATE CANCER

Y. Matsuoka¹, K. Saito, N. Numao¹, H. Tanaka², M. Inoue¹, M. Ito¹, S. Yoshida¹, M. Yokoyama, J. Ishioka¹, Y. Fujii¹, K. Kihara¹

¹ Tokyo Medical and Dental University Graduate School, Tokyo, Japan

² Ochanomizu Surugadai Clinic, Tokyo, Japan

Introduction: Accurate evaluation for the extent of significant cancer (SC) is essential to avoid undertreatment when focal therapy (FT) is performed with sufficient intensity to eradicate prostate cancer (PC). By D'Amico risk category, we investigated the possibility of underdiagnosis by MRI and biopsy for: extra-prostatic extension (EPE) in treatment field; and SC left in untreated areas. We verified the applicability of quadrant-based FT to intermediate- and high-risk PC, compared with low-risk PC.

Methods: We enrolled 203 PC patients in stage cT₂ on digital rectal examination who underwent multiparametric MRI, systematic 14-core biopsy, and radical prostatectomy. Each prostate was examined for EPE on MRI using the PI-RADS version 2. Each quadrant was assessed for SC using MRI and biopsy. Anterior and posterior quadrants were assessed through 4 anterior/lateral cores and 4 posterior/lateral cores, respectively. Additional MRI-targeted sampling was included. SC was defined as a lesion with volume ≥ 0.5 mL and/or Gleason score $\geq 4+3$ and/or EPE. We consider that the absence of EPE is a precondition for FT and that the absence of SC is prerequisite for untreated areas.

Results: Low-/intermediate-/high-risk PC were identified in 35/109/59 men, respectively. In each risk group, radiological EPE (rEPE) on MRI was absent in 31/49/21 men (89/45/36%). Among men without rEPE, EPE was pathologically absent in 30/47/19 men (97/96/90%) ($p = 1.00$ and 0.56 in intermediate- and high-risk groups, respectively, versus low-risk group). In men without rEPE, SC was absent in 44/55/23 anterior quadrants (71/56/55%) and 46/55/22 posterior quadrants (74/56/52%). Negative predictive values of the combination of MRI and biopsy for SC were 95/96/100% in anterior quadrants ($p = 1.00$ and 1.00 in intermediate- and high-risk groups, respectively, versus low-risk group) and 94/98/89% in posterior quadrants ($p = 0.58$ and 0.61).

Conclusion: In intermediate- and high-risk PC selected through MRI and biopsy, EPE is absent in 96% and 90% of men, respectively, and SC left in untreated areas is absent in 96-98% and 89-100% of quadrants, respectively, suggesting that FT is an option for intermediate-risk PC as well as low-risk PC. Although further studies using larger cohorts are needed, carefully-selected high-risk PC might also be a candidate for FT.