

Could Computed Tomography Predict Vascular R0 Resection In Patients With Borderline And Locally Advanced Pancreatic Adenocarcinoma After Neoadjuvant Chemotherapy?

Yoo Na LEE¹, Woohyung LEE^{*1}, Yong Jae KWON¹, Yun Beom RYU¹, Min Kyu SUNG¹, Dakyum SHIN¹, Young Hoon ROH¹, Sarang HONG¹, Yejong PARK¹, Bong Jun KWAK¹, Ki Byung SONG¹, Jae Hoon LEE¹, Dae Wook HWANG¹, Song Cheol KIM¹

¹Hepatobiliarypancreas Surgery, Seoul Asan Medical Center, REPUBLIC OF KOREA

Background : Although neoadjuvant chemotherapy is considerable for locally advanced pancreatic cancer/borderline resectable pancreatic cancer (LA/BRPC) patients, the response evaluation using computed tomography (CT) was limited in previous studies.

Methods : The patients who underwent curative intent surgery after NACT for LA/BRPC in a tertiary referral center between January 2017 and December 2020. CT response for vessel invasion was measured by the vascular burden index score, includes 3 parameters: circumferential interface, length and contour deformity. For each parameter, grades were divided and finally arterial burden index (ABI) and vein burden index (VBI) scores were calculated by simply adding the points: circumferential tumor-vascular contact (5 grades), the length of tumor vascular contact (4 grades), and the degree of contour deformity (7 grades). ABI and VBI were classified into two groups according to the scores; low (0-9) and high group (10 or more). We investigated that the value and change of vascular burden index could predict pathologic R0 resection of resected vessels.

Results : Of 236 patients, 71 and 165 patients were divided into LAPC and BRPC, resectively. There were 38 (16.1%) patients with pathologically proven vessel invasion. The mean pre-NACT ABI and VBI were $4.33(\pm 4.44)$ and $8.46(\pm 2.93)$, respectively. post-NACT ABI and VBI were $3.33(\pm 3.85)$ and $7.37(\pm 3.09)$, respectively. The patients with low post-NACT VBI showed venous R0 resection significantly (77.7% vs 22.3%, $p=0.007$). However, ABI did not predict arterial R0 resection. In multivariate analysis, low post-NACT VBI was independent factor for venous R0 resection (odds ratio [OR] 0.433, 95% confidence interval [CI] 0.198-0.950, $p=0.037$) as well as tumor size (OR 1.768, 95% CI 1.295-2.414, $p<0.001$).

Conclusions : Low post-NACT VBI could predict venous R0 resection for LA/BRPC patients after NACT, whereas ABI has limitation to evaluate arterial R0 resection.

Corresponding Author : **Woohyung LEE** (ywhnet@amc.seoul.kr)