HBP SURGERY WEEK 2021 VIRTUAL &ONSITE
MARCH 25-27, 2021 GRAND WALKERHILL HOTEL, SEOUL, KOREA
www.khbps.org
& The 54th Annual Congress of the Korean Association of HBP Surgery
The Korean Association of Hepato-Biliary-Pancreatic Surgery

EP183

External validation of risk prediction platform for pancreatic fistula after pancreatoduodenectomy using artificial intelligence

So Jeong YOON[1], Jin-Young JANG[2], So Kyung YOON[1], Ji Hye JUNG[1], Sang Hyun SHIN[1], Jin Seok HEO[1], Yong Chan SHIN[3], Chang-Sup LIM[4], In Woong HAN[* 1]

[1]*Division of hepatobiliary-Pancreatic surgery, Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea*
[2]*Department of Surgery, Seoul National University Hospital, Seoul National University College of Medicine, Korea*
[3]*Department of Surgery, Ilsan Paik Hospital, Inje University College of Medicine, Korea*
[4]*Department of Surgery, Seoul Metropolitan Government-Seoul National University, Boramae Medical Center, Seoul National University College of Medicine, Korea*

Introduction : Postoperative pancreatic fistula (POPF) is a life-threatening complication following pancreatoduodenectomy (PD). We previously developed artificial intelligence (AI)-based risk prediction platform for POPF after PD. This study aims to externally validate the formerly developed platform.

Methods : Between January 2007 and December 2016, a total of 1576 patients who underwent PD in Seoul National University Hospital, Ilsan Paik Hospital, and Boramae Medical Center were retrospectively reviewed for external validation. POPF was defined according to the 2016 updated International Study Group of Pancreatic Fistula. The individual risk scores for POPF were calculated using AI risk prediction platform by Samsung Medical Center. The predictive ability was evaluated with a Receiver Operating Characteristic (ROC) curve and the area under the curve (AUC). In order to obtain the optimal predictive value, we performed backward elimination in accordance with the results from the AI development process.

Results : There were 270 (17.1%) patients who developed POPF in the validation cohort. After backward elimination, each AUC varied from 0.585 to 0.672. The 13 risk factors representing the maximal AUC were pancreatic duct diameter, body mass index, pre-operative serum albumin, amount of intra-operative fluid infusion, age, pre-operative platelet count, location of tumor, combined venous resection, co-existing pancreatitis, pre-operative serum lipase, neoadjuvant radiotherapy, American Society of Anesthesiologists' score, and sex.

Conclusions : We performed external validation of previously developed AI platform for predicting POPF. This user-friendly platform could be used to discriminate individual risk of POPF. Further research is needed to investigate other potential risk factors and to improve the predictability of the platform.

Corresponding Author. : **In Woong HAN** (cardioman76@gmail.com)

Presenter : **So Jeong YOON** (wooyabi@gmail.com)