Variant AB0 Blood Group Alleles and Risk of Pancreatic Cancer: Results from the PANDoRA Consortium

Cosmeri Rizzato¹, Daniele Campa¹, Jens Werner², Gabriele Capurso³, William Greenhalf⁴, Renata Talar-Wojnarowska⁵, Krzysztof Jamroziak⁵, Raffaele Pezzilli⁶, Dario Fabbri⁶, Roberto Valentè³, Eithne Costello⁴, Kay-Tee Khaw⁷, Tim Key⁸, Stefano Landi⁹, John P Neoptolemos⁴, Peter Bugert¹⁰, Pavel Vodicka¹¹, Pavel Soucek¹², Markus W Büchler², Nathalia Giese², Federico Canzian¹


Context Several early studies reported an association between AB0 blood type and pancreatic cancer risk. A genome-wide association study (GWAS) recently reported association between SNPs at the AB0 locus and pancreatic cancer risk. Objective We attempted to replicate and expand the association with the locus in a series of PDAC and healthy controls of European ancestry within the PANcreatic Disease ReseArch (PANDoRA) consortium. Methods We genotyped 6 functional SNPs enabling the prediction the AB0 blood groups in 1,028 PDAC cases and 2,252 controls from the PANDoRA consortium. We tested each SNP and the predicted blood type for association with PDAC risk and also assessed whether the risk SNPs and blood types have an impact on survival of the patients. Results We replicated the association reported in the GWAS with rs505922 (OR=1.18; 95% CI: 1.001-1.39; P=0.048). We also confirmed the associations with blood group A (OR=1.24; 95% CI: 1.04-1.48; P=0.015), and in particular with subgroup A1. We do not find association with blood groups B and AB. We did not find any statistically significant association between SNPs in AB0 or blood group and survival or different staging of cancer. Conclusion AB0 alleles corresponding to increased glycosyltransferase activity were associated with increased pancreatic cancer risk.