

中文題目:血漿中間質性金屬蛋白酶-1有助於食道鱗狀上皮細胞癌的診斷及預後預測

英文題目: Plasma matrix metalloproteinase 1 improves the detection and survival prediction of esophageal squamous cell carcinoma

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Background: This study aimed to identify noninvasive markers for esophageal squamous-cell carcinoma (ESCC) detection.

Methods: By microarray-based screening of 17 pairs of ESCC specimens, we identified 7 genes to have a fold-change above 1.5 and a p-value less than 0.005. Among them, only matrix metalloproteinase-1 (MMP1) is a secreted protein, which is also measurable in blood. First, we confirmed consistent overexpression of MMP1 in another publically available microarray dataset (GSE23400 and GSE 20347). Then, we measured the plasma MMP1 by enzyme-linked immunosorbent assay (ELISA) in 210 ESCC patients and 197 healthy controls.

Results: The mean plasma MMP1 level was higher among ESCC patients than the controls (8.7 ± 7.5 vs. 6.7 ± 4.9 ng/mL, $p < 0.0001$). Using the highest quartile level of all subjects (9.67 ng/mL) as the cut-off value, those with higher plasma MMP1 had 9.0-fold risk of having ESCC (adjusted odds ratio (AOR)=9.0, 95% confidence interval (CI)=2.2-36.0, $p=0.0019$). Heavy smokers (consumed cigarettes >20 pack-years) and heavy drinkers (>20 drink-years) with higher plasma MMP1 were at 61.4 (AOR=61.4, 95% CI=10.7-356.7) and 31 (AOR=31.0, 95% CI=6.0-161.6) times the risk respectively, of having ESCC compared with non-users with lower MMP1. However, plasma MMP1 was not associated with clinical stages.

Conclusion: Increased plasma MMP1 alone or in combination with smoking and alcohol drinking habits may be associated with the presence of ESCC. Further studies are required to confirm its role in selecting high-risk populations (eg. heavy smokers/drinkers with higher plasma MMP1) for endoscopic surveillance to detect early ESCC.