題名:Induction of platelet aggregation by SAS tongue cancer cells: a mechanism of hematogenous metastasis

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摘要:BACKGROUND: Tongue cancer metastasis is mainly through blood stream and possibly associated with tumor cell-induced platelet aggregation (TCIPA).
METHODS: Platelet aggregation was induced by different amounts of SAS tongue cancer cells withwithout inhibitors and the latent period for induction of platelet
aggregation was recorded. Gene expression was analyzed by reverse transcriptase-polymerase chain reaction.
RESULTS: SAS cells (4 · 104 to 1 · 106 cellsml) induced platelet aggregation in a cell density-dependent manner. The latent period for induction of platelet aggregation reduced from 11.3 min (2 · 105 cellsml) to 0.9 min (5 · 105 cellsml). The extent of platelet aggregation increased from 39% to 76% by 2 · 105 and 5 · 105 SAS cells. Pre-treatment of SAS cells with aspirin showed little effect on its induction of platelet
aggregation. SAS cells expressed tissue factor (TF) mRNA and the SAS cells-induced TCIPA was inhibited by TF neutralization antibody (5–20 lgml), heparin (5–10 Uml), Hirudin fragment 54–65 (50 lgml) and D-Phenylalanyl-L-prolyl-L-arginine chloromethyl ketone. But areca nut (AN, a betel quid component known to generate reactive oxygen species (ROS)) extract showed little effect on TF expression in SAS cells. Pretreatment
with U73122 and 2-aminoethoxydiphenylborate

inhibited SAS-induced TCIPA. Interestingly, catalase suppressed SAS cells-induced TCIPA, whereas AN extract enhanced this event.
CONCLUSIONS: These results suggest that tongue cancer cells may induce TCIPA and enhance tumor metastasis. SAS-induced TCIPA is related to TF secretion, thrombin generation and associated with Phospholipase C-Inositol triphosphate signaling and ROS production. Betel quid chewing may potentially promote tongue cancer metastasis.