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1. Front Med. 2015 Dec;9(4):478-86. doi: 10.1007/s11684-015-0420-0. Epub 2015 Nov 18.

### **U-shaped association between telomere length and esophageal squamous cell carcinoma risk: a case-control study in Chinese population.**

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#### **Abstract**

Telomeres play a critical role in biological ageing by maintaining chromosomal integrity and preventing chromosome ends fusion. Epidemiological studies have suggested that inter-individual differences of telomere length could affect predisposition to multiple cancers, but

evidence regarding esophageal squamous cell carcinoma (ESCC) was still uncertain. Several telomere length-related single nucleotide polymorphisms (TL-SNPs) in Caucasians have been reported in genome-wide association studies. However, the effects of telomere length and TL-SNPs on ESCC development are unclear. Therefore, we conducted a case-control study (1045 ESCC cases and 1433 controls) to evaluate the associations between telomere length, TL-SNPs, and ESCC risk in Chinese population. As a result, ESCC cases showed overall shorter relative telomere length (RTL) (median: 1.34) than controls (median: 1.50,  $P < 0.001$ ). More interestingly, an evident nonlinear U-shaped association was observed between RTL and ESCC risk ( $P < 0.001$ ), with odds ratios (95% confidence interval) equal to 2.40 (1.84-3.14), 1.36 (1.03-1.79), 1.01 (0.76-1.35), and 1.37 (1.03-1.82) for individuals in the 1st (the shortest), 2nd, 3rd, and 5th (the longest) quintile, respectively, compared with those in the 4th quintile as reference group. No significant associations were observed between the eight reported TL-SNPs and ESCC susceptibility. These findings suggest that either short or extremely long telomeres may be risk factors for ESCC in the Chinese population.

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