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Association between occupational exposure to tobacco dust and absolute telomere length: A cross sectional study on female beedi workers

Yamini Kanipakam
Shri Sathya Sai Medical College and Research Institute, India

Aim and objective: The main aim of the study was to assess the absolute telomere length (aTL) in female beedi workers using real-time polymerase chain reaction (RT-PCR) and to compare the aTL with female non-beedi workers.

Materials and methods: A cross-sectional study was carried out among age-matched 20 female non-beedi workers and 20 female beedi workers were enrolled for molecular analysis. The workers were in the age group of 20–35 years and were workers exposed from 1 to 3 years. Saliva samples were collected from workers and control subjects for molecular analysis. The genomic DNA was extracted from saliva and aTL was estimated using real-time polymerase chain reaction.

Results: The mean and standard deviation of average absolute TL/each chromosome end for the control group and study group were 0.75 ± 0.94 and 1.45 ± 2.76 kb. There was no statistically significant difference between the control group and the study group ($Z = -0.112$, $p = 0.911$).

Conclusion: The present study revealed that there is no significant association in average absolute TL in early exposed female beedi workers when compared with female non-beedi workers. Furthermore, horizons are to be expanded for the population to prevent any occupational health hazards.

Clinical significance: Telomere length is a biological clock that decides the lifetime of a cell and organism. Determination of TL is a better tool to detect genomic damage. Unburnt tobacco has been related to several health issues in beedi employees. The importance is to predict the genetic liability by estimating the aTL in beedi workers at early exposure to tobacco dust (TD).

Biography

Yamini Kanipakam's passion in molecular basis of cancer led her to choose the thesis topic in molecular genetics during her postgraduate studies. Her thesis was the first cross-sectional study carried out on beedi workers to determine absolute telomere length by using real-time PCR. The study found no significant association between early tobacco dust exposure and absolute Telomere length. She has published papers in national and international journals. She received certificate of Excellence in Reviewing from Journal of Pharmaceutical Research International. Currently, she is working for the Rivista Medicine journal as an Associate Editor.

dr.mini2711@gmail.com