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Ageing and head and neck cancer

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In the last decades head and neck cancer incidence has risen in the elderly (>70 years) as a consequence of the increased average lifespan.

Two main mechanisms have been suggested to explain the increase in cancer incidence with ageing: the first refers to prolonged exposure to carcinogens during life and the second explanation seems to be attributed to the individual vulnerability to cancer with age.

To suppress the development of cancer two main strategies are involved: one uses Caretaker proteins to protect genome from mutations and the other uses Gatekeeper proteins to eliminate or prevent the growth of mutated cells.

Recently studies on ageing have shown a correlation between ageing and an increase in the mitochondrial production of Reactive Oxigen Species (ROS) and between mitochondrial function decline age –associate and mitochondrial DNA (mtDNA) mutations.

Mitochondrial DNA mutations have been found to be implicated in the head and neck cancer multistep process.

So, future strategies that prevent mtDNA damage or improve DNA-repair mechanisms are likely to decrease susceptibility to cancer with age.

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