

# **Biomedical challenges of human senescence: a review**

## **Abstract:**

To summarise and discuss the progress made in the study of human senescence over the past one hundred years and assess the achievements to date. **DATA SOURCES:** Published original research and reviews during the past one hundred years. **STUDY SELECTION:** The summary focused on those contributions that tested the various hypotheses that attempt to identify and explain the factors that are involved in the ageing process. **DATA EXTRACTION AND SYNTHESIS:** Online and manual library searches provided a body of data on which the summaries and discussions were based. Specific questions were addressed: Why does ageing occur? What are the key mechanisms? To what extent are genetic and environmental factors involved in the ageing process? How does the immune system behave during ageing and especially against infectious agents? Answers to these questions were discussed against the background of major improvements in life expectancy in most parts of the world except for sub-Saharan Africa where the HIV/AIDS pandemic has reversed the trend. **CONCLUSION:** Biological and clinical studies over the past century clearly reflect a better understanding of the major factors involved in human senescence. It is appreciated that human life expectancy has improved dramatically over the period through achievements in public health, therapy, nutrition and general living standards. A great deal remains to be done through multidisciplinary research before the quality of life can be improved further.