



## Diminished Immune Response of Cancer in Older Adults

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### DESCRIPTION

Population ageing has significantly contributed to an increase in the number of new cancer cases worldwide. Older adults, defined as people aged 65 and older, have higher cancer incidence and mortality rates than younger people. Approximately 60% of all cancers occur in the older adult population, resulting in a 10-11 times higher incidence rate than in the younger population. The risk of developing cancer is 8%–9% in people aged 40–59, with a dramatic increase in risk of 20%–30% in people over 60. Furthermore, cancer mortality rates are higher in older adults, with approximately 70% of all cancer deaths occurring in people over the age of 65. With the steady growth in the ageing population and higher rates of cancer incidence in this group, healthcare providers must be aware of this significant public health concern that will occur in the near future and begin to focus attention on evidence-based approaches to the treatment and care of the elderly.

### Tumor genesis

The ageing process makes a sufficient number of cells vulnerable to carcinogenesis and allows enough time for the multi-step process of tumorigenesis to take place. Accumulated irreversible changes in stem cell DNA occur in oncogenes, antiproliferative and apoptotic genes, and cell lines, leading to cellular immortality and the start of the multistep process.

**Promotion and transformation:** Mitogenesis and cell division are increased, resulting in a "pre-malignant" phenotype. The release and interaction of cytokines and chemokines, as well as hormonal and metabolic changes that induce cellular senescence and prime the microenvironment and stroma for tumour progression, all contribute to tumour progression. Age-related changes in cytokines, chemokines, and hormone levels, receptor expression, and HPA-axis function may hasten the promotion and transformation phases.

**Progression:** Clonal expansion and metastasis of tumour cells

can occur in this favourable environment. Changes in gene expression and cellular proliferation may be reversible at this stage. Age is a well-known risk factor for the development of cancer. In fact, you could argue that ageing is the primary carcinogen.

The normal ageing process affects many important biological processes within our bodies, resulting in protein and DNA deterioration in cells. Many of these damaged cells enter a state of arrested growth known as "senescence"—they stop dividing and growing but remain metabolically active and capable of causing problems.

### CONCLUSION

Lowering blood pressure safely requires an established, monitored medication regimen, physical activity, and reduced sodium and salt intake. Treating high blood pressure in older adults is difficult due to other comorbid conditions, frailty, cognitive impairment, and multiple medication use. When the heart fails to perform its normal pumping function, the most common symptoms are fatigue, shortness of breath, and swollen legs. Heart failure becomes more common with age as the heart becomes more vulnerable to various injuries or simply begins to deteriorate as a pump as part of the ageing process. The underlying causes of heart failure include impaired heart pumping function (contractility) caused by heart damage from decreased blood supply or a previous heart attack (systolic dysfunction), an increase in pressure load, or impaired relaxation (diastolic dysfunction, the ability of the heart to relax and fill passively with blood). Indeed, as people get older, the proportion of people with heart failure but normal systolic function approaches 50% or higher. Age-related changes in the cardiovascular system are caused by intrinsic cardiac aspects of human ageing, primary cardiac disease, and the impact of comorbid conditions on the heart. Age has a negative impact on the natural history of heart disease.

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**Received:** 21-Jul-2022, Manuscript No. JASC-22-17990; **Editor assigned:** 25-Jul-2022, Pre QC No. JASC-22-17990 (PQ); **Reviewed:** 08-Aug-2022, QC No JASC-22-17990; **Revised:** 16-Aug-2022, Manuscript No. JASC-22-17990 (R); **Published:** 22-Aug-2022, DOI: 10.35248/2329-8847.22.S13.002.

**Citation:** Smith R (2022) Diminished Immune Response of Cancer in Older Adults. J Aging Sci. S13:002.

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