



BMH Med. J. 2020;7 (Suppl): S31-34. **Geriatrics & Gerontology Initiative: International Workshop on Care of the Elderly**

## Geriatric Oncology

Durga Prasan

**Address for Correspondence:** Dr. Durga Prasan, MBBS, MD (Internal Medicine), Dip Nat Board (Medical Oncology), Consultant Medical Oncologist, Baby Memorial Hospital, Calicut, Kerala, India. E-mail: durgaprasan@gmail.com

### Changing landscape of cancer care in elderly

*An elderly gentleman visited my clinic with history of gradually worsening shortness of breath. He had been feeling unwell for last few weeks, with poor appetite, fatigue and a nagging pain in low back. He was a light smoker in the past, and has been on treatment for coronary artery disease, having had a PTCA 6 years back, and oral antidiabetic agents for management of diabetes. Despite these comorbidities, he had been leading an active post retirement life. His cardiologist suggested an X ray of chest which showed a large left sided pleural effusion, with normal cardiac function on echocardiogram. He was referred to Pulmonologist, who had to perform a thoracoscopy to arrive at a diagnosis of adenocarcinoma of left lung, with extensive pleural surface deposits. Further evaluation showed contralateral lung nodule, multiple mediastinal node enlargement, right adrenal deposit and at least 3 bone metastasis. Segment VI of liver showed two metastatic nodules.*

This is not an unusual situation in our daily practice. With improvement in overall health of populations, life expectancy has increased considerably in India and across the world. As a result, the proportion of population in India above the age of 60 years is expected to rise to above 20% by year 2050 according to an estimate by United Nations Population Fund published in 2019. With improved control on communicable and nutrition related disorders, chronic life-style diseases such as cancer pose a significant public health burden.

Based on chronology, Geriatric age group is defined as above 65 years of age by most societies. Increasing age is one of the most important non modifiable risk factors for development of cancer. With improvement in life expectancy and 45% increase in elderly population by 2025, there is a 280% increase in incidence of cancers expected in elderly by 2025 [2]. As expected, in a country like India with limited resources and a healthcare system in which 60% or more of cancer care is delivered by private sector, this poses a public health burden of enormous proportions.

### Cancer biology in elderly

Cancer is a genetic disease. Genetic mutations are the fundamental basis for development of cancers, ranging from single gene driver mutation driven cancers to cancers with multigene mutations. With advancing age, mutations are progressively acquired in various tissues, especially those with high cell turnover during the lifetime, predisposing to development of cancers. With deteriorating immunity with age including anticancer immune surveillance, development of cancers and their

metastasis show higher incidence overall. Complex heterogenous cancers are more likely to occur in elderly than in young adults and pediatric age groups.

### **Multidisciplinary treatment and need for panel of experts**

Cancers are unique group of illnesses where treatments are multidisciplinary, especially in solid tumors. This is more often true in potentially curative setting such as breast and colon cancer in early stages, which are common cancers in elderly.

Apart from the complexities of managing cancer by itself, old age poses several unique challenges for cancer treatment. For health care professionals faced with taking care of an increasing burden of elderly patients, there are several key issues that need to be addressed. Comprehensive Geriatric Assessment is a means of creating an overall objective assessment that helps clinicians and other care givers in optimizing cancer care delivery to the elderly.

### **Functional assessment**

The chronological age, though the most objective means of assessing a patient's overall health, may under or overestimate the capacity of patients to undergo potentially toxic anticancer treatment. Traditionally, the elderly have been excluded from large scale clinical trials testing new therapy, though smaller, more focused studies show that this population does as well with chemotherapy and other modalities of treatment provided they are selected based on functional assessment rather than chronological age.

Various functional assessment scales provide objective and comparable information that can be adopted to the clinic. However, some of the easy tests have shown to be equally sensitive to providing accurate functional assessment. The Karnofsky's performance status is most widely used, as are its variants such as ECOG performance status. These tools are used universally and are not confined to geriatric patients alone. In the elderly, simple information on Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) provide crucial information about functional status. ADLs are a set of simple tasks that allow independence at home in terms of function. Instrumental activities of daily living (IADL) are complex tasks such as skilled tasks that allow one to be independent in society, such as workplace or in public spaces. The Timed Up and Go (TUG) test involves measuring the time from sitting position to getting up and walking 10 feet forward, turn around and return to sit back in the chair. TUG test accurately predicts higher risk of falls in elderly, with timing in excess of 13 seconds associated with higher risk of falls. A higher fall risk makes the elderly susceptible to side effects of treatments that either cause severe fatigue or neuropathy. Another easy to do test is Gait Speed, based on distance covered while walking with respect to time. In large pooled analysis of 9 studies involving more than 30000 participants, gait speed correlated with functional capacity and survival. A gait speed of less than 0.8m/s correlated with poor survival for age, more than 1.0 m/s was correlated with better than average survival, and more than 1.2 m/s with exceptional survival for age. Prediction of longevity is important in cancers with long natural history such as prostate cancers, hormone rich breast cancers and well differentiated node negative colon cancers, among others. They allow decision making process by helping us choose who would need to be treated and who could be kept on observation or watchful waiting strategy.

### **Comorbidities**

As age advances, the elderly have to deal with various comorbidities. It is common to find elderly cancer patients also being on treatment for diabetes, hypertension, coronary artery disease, cerebrovascular disease, peripheral neuropathy, cataract, osteoporosis, arthritis, benign prostate hyperplasia related urinary symptoms, dementia, neurodegenerative movement disorders among others. Most of these patients are already seeing multiple specialists, especially in a country like

India where neither Geriatric Medicine nor General Practitioners have a major influence in management of patients. Increasing reliance on specialists has brought about improved overall survival and better quality of life years, at the cost of making the healthcare delivery more complex for the elderly.

### **Pills, pills and more pills**

One persistent problem in elderly is the number of medications they are already on when cancer treatment is started. Many of the current oncology prescriptions include large number of oral medications, often to be taken together on empty stomach. With failing eyesight and deteriorating ability to remember and organize one’s daily life, having to take multiple pills with complicated instructions can often be difficult and intimidating.

More often than not, we live in nuclear families and access to healthcare in societies such as India in geriatric populations pose their own logistical challenges. This compounds the problems of polypharmacy in this age group.

### **Surgery**

Surgical management has become safer despite the increasing complexity of the procedures being performed. Liver resections for metastatic colon cancer, small bowel resections and peritonectomy in ovarian cancer management, and pancreatic cancer surgery are good examples of aggressive treatments being safely carried out in modern surgery with acceptable morbidity. Age has no longer become a barrier to effective surgical treatment if physiological functional status permits. With improvements in anesthesia, and support of specialities such as cardiology, nephrology, critical care and hepatology, more and more elderly patients are able to successfully undergo major resections and reconstructions without significant worsening of outcomes. Hence, many surgical treatments for cancers such as breast, colon, stomach, gall bladder and even pancreas are being safely carried out irrespective of age. The key factor in decision making in surgery is the physiological status of the patient and the overall prognosis of the disease in question. For example, a 90 year old male with Dukes C colon cancer may be spared adjuvant treatment with chemotherapy after surgery has been successfully carried out for tumor excision. On the other hand, a 90 year old male with lower rectal adenocarcinoma maybe treated with radiation instead of surgery with almost similar results without the need for major surgical procedure.

### **Chemotherapy, and non-chemotherapeutic systemic treatments**

Over the last few decades, chemotherapy has become safer for all patients, including the geriatric population. As a result, more and more elderly patients are able to complete the planned chemotherapy schedules. Chemotherapy induced myelosuppression is now easily managed with easy access to filgrastim and its derivatives. Hence, several diseases of the elderly such as prostate cancer can now be safely treated with taxane based chemotherapy without significant morbidity. However, other complications like neuropathy and cardiomyopathy continue to pose major hurdles in effective chemotherapy administration. Neuropathies in particular are common, and under recognized. They lead to diminished mobility and several times higher risk of fall, which in turn become difficult orthopedic problem. There is an emphasis on prevention of neuropathy induced morbidity and disability in recent studies due to an increased recognition of this complication due to effective management of other complications like neutropenic sepsis and emesis. Recent evidence from adjuvant colorectal cancer chemotherapy trials suggest that shortened duration of chemotherapy which reduces neuropathy related complications maybe non inferior to longer duration conventional dose chemotherapy regimes. Similarly, chemosensitive malignancies like lymphomas maybe treated in elderly with reduced doses of vincristine to prevent neuropathy and

related constipation without significantly affecting survival.

With advancements in research and newer insights, there has been a paradigm shift in management of several cancers, especially with hematological malignancies and some of the common solid tumors. Myeloma, which remains the commonest hematological malignancy in elderly, has had the most dramatic shift away from toxic chemotherapy such as VAD to outpatient based treatments. Antimyeloma treatments based on proteasome inhibitors, stroma directed antiangiogenesis drugs, monoclonal antibodies and other newer treatments have not only improved overall survival dramatically, they have been significantly easier to tolerate even in elderly populations. In myelodysplastic syndrome and acute myeloid leukemia, targeted therapies and treatments directed at hypomethylation of DNA have significantly improved survival and tolerance of the elderly to treatment, while making the treatment predominantly outpatient based. Some of the most dramatic advancements have taken place in lymphoma/lymphocytic leukemia, where targeted therapies based on targeting newer targets such as Bruton Tyrosine Kinase and Bcl-2 have not only made the treatments predominantly oral, but have achieved remission rates previously not thought achievable with conventional chemotherapy.

Immune check point inhibitor therapies have made significant impact in management of many advanced cancers, both solid tumors and hematological malignancies. Most of these treatments have been used in elderly and have not been associated with significantly worse outcomes than in general population. Most studies indicate better overall quality of life and tolerance of immune check point inhibitors and targeted therapy in elderly population than with chemotherapy based treatment.

### **Radiation therapy**

With advancements in treatment protocols, radiation therapy is one of the safest treatments for elderly patients requiring either radical curative treatments or for palliative treatment. As a result, radiation therapy has emerged as a preferred substitute for surgery in areas such as cervical cancers, prostate cancers, localized lung cancers, esophageal malignancies and urinary bladder cancers in elderly populations, where it offers a non invasive and relatively less morbid treatment with equivalent results. With increasing survival and longevity of cancer patients, unusual patterns of recurrences become more and more common in all patients, including elderly population.

### **Where do we go from here?**

With improved diagnosis, treatment and supportive care, the elderly cancer patients derive comparable benefit from anticancer management as do younger patients. As a result, the proportion of patients on palliative care or best supportive care alone have reduced, especially in newly diagnosed cases. Hence, a 70 year old newly diagnosed patient of adenocarcinoma prostate in low intermediate risk category with stable angina, diabetes and good performance status is expected to live long enough to derive benefit from radical treatment for prostate cancer, something that would have otherwise resulted in advice for observation only a decade back. Cancer has increasingly changed from a rapidly fatal to a chronic illness. The future is exciting and full of promise.

### **References**

1. United Nations Population Fund publication dt 01 October 2011
2. Cancer in the Elderly- Get ready for the Epidemic. PM Parikh, AV Bakshi; Association of Physicians of India Medicine Update 2005 Chapter 166