

Challenges in the Practice of Geriatric Oncology in a National Comprehensive Cancer Centre in Asia

a report by

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As an industrialised nation, Singapore shares similar societal and healthcare concerns with other developed countries. It has a multiracial society comprising different ethnicities: 75% Chinese, 14% Malays, 9% Indians and 2% Eurasians and other groups. The twin emergence of an ageing population and cancer as the leading cause of mortality has led to the burgeoning increase in the population of elderly patients with cancer. In Singapore, the number of elderly people older than 65 years of age as a percentage of the general population is projected to increase from 6.8% in 1995 to 20% by 2030, and cancer disproportionately affects more of those who are 65 years of age or older. At the National Cancer Centre Singapore (NCCS), patients aged 70 years or older account for about 40% of the 130,000 clinic attendances per year. In December 2006, a geriatric oncology programme was launched by the NCCS as a seminal framework to support research and clinical service development and to address the multifaceted challenge of managing the elderly with cancer.

The National Cancer Centre Singapore Geriatric Oncology Programme

The programme comprises outpatient and inpatient components, with a clinical research agenda interweaved into the service. The outpatient clinic in the NCCS is staffed by a medical oncologist and a nurse co-ordinator. There are plans to hold a joint geriatrician–oncologist clinic for management of complex cases at NCCS. All NCCS oncology patients are admitted to Singapore General Hospital (SGH) at the Outram Campus, which hosts a number of national healthcare centres under the management of the parent organisation SingHealth. On average, there are 80 oncology patients in the ward at any one time. A weekly multidisciplinary round for selected elderly cancer patients with challenging problems is held in the oncology ward with geriatricians, palliative care physicians, nurses and related health professionals, i.e.

nutritionists, physiotherapists, occupational therapists and social workers. These collaborators are from SGH. Monthly research meetings and talks are held to co-ordinate all research activities within geriatric oncology, discuss new research ideas and also to provide a platform for the various specialties to share new insights. The NCCS largely funds the geriatric oncology programme, with a significant proportion from private philanthropy supporting clinical research.

The Comprehensive Geriatric Assessment

The outpatient geriatric oncology clinic is where patients who are older than 70 years of age with all diagnoses of cancer are referred and managed. Prior to the consultation with the medical oncologist, the nurse programme co-ordinator will perform the Comprehensive Geriatric Assessment (CGA). The CGA entails collecting information on an individual's personal and social profile, including family support, physical performance using hand-grip strength, 'get up and go', functional status recorded using the Eastern Co-operative Oncology Group (ECOG) scale, instrumental activities of daily living (IADL) and the Katz index of activities of daily living, co-morbidity using the Charlson risk index, affective domain using the geriatric depression scale, cognitive domain using the clock drawing test, the abbreviated mental test, the mini-mental state examination (MMSE), the care-giver burden interview, the mini-nutritional assessment test and polypharmacy.

Challenges Faced

Many professionals worldwide with similar clinical and research interests share the problems encountered by the Singapore team in the management of the elderly with cancer.¹ These concerns include accumulating but still relatively limited systematic data in geriatric oncology, partly due to under-representation of the elderly in oncology trials, a bias towards understaging and undertreatment in the elderly and a lack of understanding of the impact engendered on treatment outcomes in these patients through the interaction between geriatric syndrome, co-morbidity and diagnosis of cancer. Some of the more pertinent challenges in terms of the Asian situation are highlighted below.

The Research Agenda – Global Vision and Partnerships Providing Local Solutions

The formulation of a rational and cost-efficient research programme is the lynchpin of solutions provision in the geriatric oncology practice. The NCCS geriatric oncology programme, which is a work in progress, recognises that assessment and care for the elderly cancer patient is currently far from ideal. The practice of geriatric oncology in Asia can only be advanced through collaboration with global partners in the US and Europe: being pioneers in this field these partners generously serve as excellent mentors in the learning process. The NCCS programme was



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inspired by and initially based on the Senior Adult Oncology Program (SAOP) of Moffitt Cancer Center, led by Professor Lodovico Balducci in Tampa, Florida. The International Society of Geriatric Oncology (SIOG) is the *de facto* international organisation for all research ideas to be galvanised, promoted and presented on a worldwide platform. Through this platform, the NCCS programme has ongoing research collaborations with the Moffitt Cancer Center and McGill University in Montreal, Canada. Strength in numbers and synergised resources, efficient research co-ordination, transcultural comparison and analysis of research results will result in a fertile field of ideas that will be vital in guiding clinical practice.

Global Research Tools, Local Improvisation

Improving Assessment

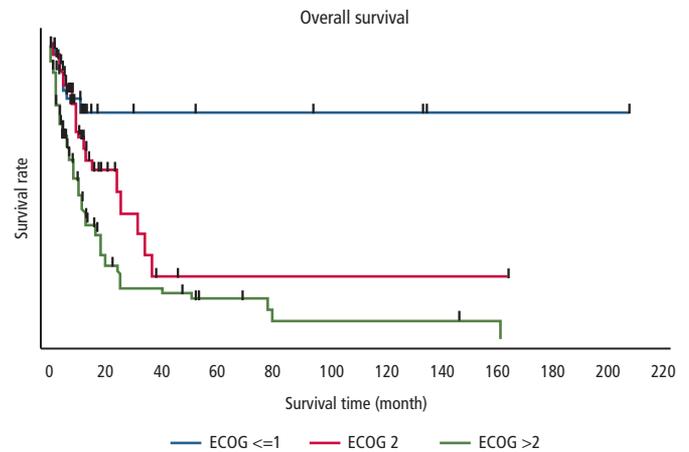
While all the tools incorporated into our CGA have been validated outside of Singapore, some factors such as the geriatric depression scale, MMSE and the abbreviated mental test have been translated into commonly used local languages and validated according to local norms. An example of the improvement in assessing prognosis is the application of our CGA results in discerning the use of cytotoxics in those who are of borderline functional status (ECOG grade 2). In our unpublished observational CGA results for 233 consecutive elderly patients with advanced cancer of various diagnoses, those with ECOG 0 and 1 have excellent survival prospects, while the survival of those with ECOG 3 and 4 are dismal. The prognosis is less certain when guided by performance status in those who are graded ECOG 2 (see Figure 1).

Incorporating the CGA helped to identify a potential factor that may refine and sharpen the assessment of those in this borderline ECOG 2 group. Cognitive status as determined by the MMSE may differentiate those with better prognosis from those who will rapidly succumb to the cancer. Patients with ECOG 2 and normal MMSE survive longer than those with abnormal MMSE (hazard ratio [HR] 0.38, confidence interval [CI] 0.16–0.90). Using local educational levels to define a normal MMSE score is critical in proper interpretation of this latter piece of information.

Tailoring Treatment for the Elderly

The utility of pharmacogenomics in geriatric oncology will enable the confident use of cytotoxic agents with minimal toxicities in the elderly. The metabolism of the drug irinotecan,² which is widely used to treat colorectal cancer, is one such example that highlights the need for local patient pharmacogenetic profiling in geriatric oncology. Certain genetic polymorphisms such as UGT1A1*28 in predominantly Caucasian patients result in reduced metabolism of the active metabolite of irinotecan – SN38. This may result in severe neutropenia and diarrhoea, both of which are poorly tolerated in the elderly with diminished physiological reserves. The incidence of UGT1A1*28 polymorphism is rare in Asian patients.³ Instead, the UGT1A1*6 polymorphism is more prevalent in Asians and predicts better for incidence of neutropenia. Therefore, more pharmacogenetic profiling across a comprehensive

Figure 1: Survival Rates of Patients According to Eastern Co-operative Oncology Group Ratings



The logrank test shows that patients at lower Eastern Co-operative Oncology Group (ECOG) status tend to survive longer than those at higher ECOG status. Overall: $p < 0.0001$; ECOG 0 and 1 versus ECOG 2 (hazard ratio [HR] 0.45, 95% confidence interval [CI] 0.21–0.98; $p = 0.0388$); ECOG 0 and 1 versus ECOG 3 and 4 (HR 0.47, 95% CI 0.33–0.67; $p < 0.0001$); ECOG 1 and 2 and 1 versus ECOG 3 and 4 (HR 0.52, 95% CI 0.33–0.83; $p = 0.0048$).

drug list is needed to effectively tailor treatment to suit elderly cancer patients.

Asian Sociocultural Perspectives Towards Cancer Treatment in the Elderly

Elderly patients in Asia tend to be more reticent in reporting symptoms, further underlining the importance of using the CGA or at least a screening tool for geriatric syndromes. Many Asian elderly patients also defer the decision-making role to family members; however, the family as surrogate decision-makers may erode the autonomy of the patient. The family frequently request that the diagnosis of cancer is withheld from the elderly patient. Furthermore, the family of elderly cancer patients commonly unfavourably view the use of cytotoxics. The conflict posed by these different sociocultural perspectives cannot be easily resolved. Any effective resolution of this conflict must be accompanied by a trustful therapeutic relationship. We are embarking on a study of the interaction between three main models of communications and perspectives in terms of the elderly cancer patient, the family/caregiver and the healthcare provider. The objective is to identify 'high-risk' interactions that threaten the harmony of the doctor–patient and doctor–care-giver relationships, and to investigate the use of potential interventions that will enhance these relationships.

Conclusion

The practice of geriatric oncology in Asia should be based on evidence that is relevant to clinical practice. This can be achieved through active collaboration with international partners, and carrying out more research to study patients, tumours and drug factors in optimising the management of the elderly cancer patient. ■

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