A Decade of Research and Progress: Quo vadis?

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In 2005, it was the vision of a few senior members in the Indian Academy of Geriatrics to begin an academic journal dedicated to dissemination of research in Geriatrics. A flurry of activity followed and I was fortunate to be among those who witnessed the launch of the first copy of the Journal of the Indian Academy of Geriatrics (JIAG) by the Hon'ble Vice President of India, Sh. Bhairon Singh Shekhawat in New Delhi on 17th June 2005. The Journal has been kept active all these years at Jodhpur, by the sincere and tireless efforts of Prof. Arvind Mathur and Dr. Pratap Sanchetee. A few days ago, at a meeting in the Ministry of Health and Family Welfare, a simple question "Could we prepare a compilation of geriatric research in India?" led me to think that while the such research may be available in many journals, the JIAG could be a good starting point for such a compilation. I identified the original research articles till date and tried to summarize it in a narrative form. I am presenting a simplified version below and as the articles differed in methodology, number of participants, geographic and rural-urban location what follows is a generalization.

The Aging Process:

A diet rich in antioxidants, including that rich in Vitamin E to reduce the augmented oxidative stress as well as adequate minerals and proteins may have a role in mitigating the aging process. Age related decline in pulmonary function was aggravated by co-morbid conditions and smoking.

The Elderly in the Community:

In a community of elders, females outlived males and there were more widows. Major medical problems including visual disorders mainly cataracts (>60%), osteoarthritis (50-60%) hypertension (40%), diabetes mellitus (25%); respiratory problems (cardiac and pulmonary) and hearing impairment were also common. These findings were seen in rural as well as urban areas. There were some with cognitive impairment. Poor nutritional status and obesity was also prevalent. Dental health was poor with dental caries and prosthetic treatment needs which were influenced by financial status. A few were physically immobile and had severe ADL impairment as well as limitation of outdoor physical activity (10%) and the majority had at least one chronic illness. Nutritional assessment in rural elderly indicated a trend towards protein malnutrition. Sagittal abdominal assessment was useful in identifying metabolic syndrome. The role of elderly as change agents was identified in health education interventions. Smoking, alcohol, betel chewing was noticed to be more in some geographical regions. A majority preferred allopathic treatment. Verbal autopsy in the rural community indicated that 90% deaths occurred at home.

Musculoskeletal System:

Differences in grip strength as a part of the aging process was influenced by age, gender, nutrition and rural-urban residence. Balance improved with exercise training of the dorsiflexors of the ankle. Ankle Range of Motion was poor in elderly females. Movement patterns changed with advancing age and the same task, like getting up from floor, took more time. Dual task performance identified those with balance and cognitive problems and hand grip identified poor nutritional status. Balance confidence was low in crossing roads, crowded areas or climbing uphill. Bone mineral density and biochemical markers of bone were useful to identify osteoporosis and fractures. Geriatric syndromes like falls were more common in females, precipitated by intrinsic causes, musculoskeletal and visual defects, and sedative or other drug use. Turn 180 and Berg Balance Test were predictors of falls.

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Psychosocial and Psychiatric Disorders:

The majority of elderly lived with their children, about a third were dissatisfied with the attitudes of other family members due to negativity, non-participation in decision making and low social activity. Widows had low satisfaction but it was better if they were earning, had high economic status, were consulted and respected. Loneliness was an additional problem. Psychiatric disorders, mostly depression was seen in about 25% with female gender, rural background, illiteracy, loss of spouse, co-morbid illness like cardiovascular diseases (stroke, coronary artery disease, hypertension), diabetes mellitus, chronic obstructive pulmonary disease, arthritis, and lack of family support as factors. Half of the elderly who preferred leisurely retired lives developed depression with only 25% describing their perceived health status as good. Psychosocial stressors influenced quality of life more than co-morbid medical illnesses.

Elder Abuse:

Some form of elder abuse was identified in the majority, more in females, widows, oldest old, and included neglect, verbal or physical abuse and material exploitation.

Home Based Care:

Home-based care for the bedridden elderly was largely informal and provided by family members in a joint family along with hired help; associated problems like UTI and pressure ulcers were observed in over 30%. Satisfaction in home care was expressed by over 50%. Caregivers had inadequate knowledge of geriatric medical and other problems including the physical, physiologic, psychological health as well as interventions like tube-feeding.

Old Age Homes:

Of those living in old age homes, the majority were over 70-80 years, females, issueless, poor psychological and economic status, dependent on government grants or assistance by children, beset by inactivity, helplessness, loneliness, depression. They had similar medical problems as the elders residing in the community. Some participated in regular activities like walking, yoga and meditation.

Acute Care and Hospitalization:

Acute care admissions were predominantly with breathlessness which was cardiac or respiratory in origin but infections and anemia were also identified as contributing factors.

In general, co-morbidities were present in over 80% patients admitted to hospital with over 30% having over 3 co-morbid illnesses including chronic obstructive pulmonary disease, hypertension, coronary artery disease, diabetes mellitus and heart failure. Electrolyte abnormalities and fluid imbalance were either a result of diarrhoeal illnesses or were drug induced.

Over 10% elderly had gastrointestinal disorders, mostly in males, with anorexia, abdominal pain, changes in bowel habits, hematemesis or malena, weight loss and malignancy. New onset dyspepsia was often due to an underlying cause, usually peptic ulcer disease (52%) and malignancy (28%). Diarrhoea was usually secretory, with *E. coli* as the common bacterial cause and some were of fungal origin. Use of fermented milk (dahi) improved gut flora as well as lipids and blood glucose.

In patients with coronary artery disease, thrombolysis in oldest old had favorable outcomes; asymptomatic peripheral vascular disease was seen in over 20%, and was related to age, male gender, smoking, diabetes mellitus and hypertension. An active cardiac rehabilitation programme for 6 weeks had a beneficial role in improving BMI, lipids and functional capacity. Carotid intima media thickness (CIMT) was a useful surrogate marker for CAD in elderly. A larger platelet size indicated a risk for acute coronary syndrome.

Seizures in the elderly were commonly vascular in origin and treated with phenytoin. Thyrotoxicosis took a longer time to diagnose in the elderly with goiter, weight loss, fatigue, tachycardia and atrial fibrillation being the classic presentation.

Over 20% of the patients with pulmonary TB were elderly, usually smear negative and retreatment cases. The outcomes were less favourable with lesser cure rates, sputum conversion and treatment completion. Patients had poor nutrition and lower CD4, CD8 and NK cells which improved with treatment. HIV infection was also a possibility in elderly and was present in 1.2% of those over 50 years of age including predominantly heterosexuals, those with multiple partners, illiteracy, daily wagers and those living single.

Anemia was observed in over 30% of elderly in the OPD setting, the majority having normocytic , normochromic anemia. Hepcidin was useful in differentiating Anemia of chronic disease from Iron deficiency anemia.

Elderly males had oropharyngeal, prostate and laryngeal while females have cervical, alimentary tract, breast malignancies.

Pruritis was the most common dermatologic problem followed by eczema and fungal infections.

Majority of surgeries in elderly included explorative laprotomy or hernioplasty. A higher mortality was observed in emergency surgery often precipitated by post-operative sepsis, medical co-morbidities, multi-organ failure and electrolyte imbalance but not age.

Inappropriate drug prescription was observed using Beer's Criteria and the common drugs included Digoxin and NSAIDS.

Over 50% elderly patients were readmitted in 6 months, 72% had 2 or more co-morbidities, 70% improved and a majority were unavoidable, disease related, complications of disease, failed trial of home management, some had a new onset problem, some had poor OPD follow-up, compliance, and premature discharge from hospital.

Does this data add something new to the existing knowledge in the field?

The research presented in the journal is the true reflection of geriatric research done from all over the country by motivated workers from premier institutes as well as by those driven by an interest in geriatric care from small centres that do not have the means or funds for conducting studies in an academic setting. Some of it may not be cutting edge but its simplicity does not render it redundant. Rather it gives us a "real" feeling of the ground under our feet.

Where do we go from here?

The above data can be utilized to draw up priority areas which need to be tackled by policy makers through the National Programme on Health Care for the Elderly.

In addition, the experience from the above should be utilized by us to identify those areas which need further research to enable us to broaden our evidence base. There is a need for collaborative efforts among the basic scientists, clinicians, physiotherapists, nurses, social scientists, alternative and complementary systems, economists, statisticians and others interested in the health care of the elderly. It is time to take another small step.