Challenges of population ageing: putting frailty as a cornerstone of health and social care systems

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Received: 13 April 2018 / Accepted: 18 April 2018 / Published online: 27 April 2018
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Historical perspectives

Geriatric medicine as a specialty has a fairly short history, its establishment resting on the efforts of prominent UK doctors initially. The core of geriatric medicine is the multi-domain approach that covers physical, functional, psychological, nutritional, and social domains versus the system approach, embodied by the comprehensive geriatric assessment. The dissemination of this specialty to other countries depended much on continuing advocacy by doctors who received training from established geriatric departments and then incorporating the specialty into the training curriculum and service delivery models of their own countries. Such efforts have varying degrees of success, and the specialty has seldom achieved the same status as other organ-based specialty such as cardiology or gastroenterology, being reflected by fewer (and declining) number of trainees. Neither has this approach been adopted widely in the primary care setting [1]. Worldwide there are various reasons for this such as: the observations that there are nothing special and everyone looks after elderly patients; attractions to specialties involving advanced technologies and procedures; negative images of ageing and lower health care prioritizations; and lower professional income or status. One major obstacle is that it is difficult to explain the need for this specialty in a concise way. The concept of frailty that has been developing in the past 20 years represents a unique opportunity to describe the essence of geriatric medicine in a concise, quantifiable, and measurable way that can be understood by clinicians, health managers, and policy makers.

Frailty research and its impact

To date, the body of research has established that frailty represents a phenotype that is increasingly prevalent among older people (25% of 85+ years); that predicts many adverse outcomes better than individual indicators; that is not disability or multi-morbidity, but closely related; that has a biological basis in multi-system dysregulation resulting in failure of homeostasis, having the characteristics of complex dynamic non-linear systems when stressed by external factors; and also representing a clinical syndrome where screening, diagnosis, prognosis, prevention, treatment, and uptake by health systems apply [2]. Frailty as an entity forms the topic of research from genomics [3], to ‘frailomics’ [4], to urban design [5].

Relevance to public health, health policy, and clinical management

From the public health perspective, frailty may be used as an indicator of service utilization [6], as well as an indicator of whether populations are ageing well. An indicator of frailty would be more relevant to ageing populations as an indicator of ageing well, and indirectly the magnitude of health and social care burden resulting from increasing numbers of very old people, and represent an advancement over the traditional indicators such as mortality (life span indicator only) and disability, consequent to chronic diseases (disability only). Relevant public health statistics should include trends in disability as well as frailty, to allow projections and formulation of health and social care policies in response to population ageing [7–9]. The inclusion of frailty is important as it captures a vulnerable state which may be prevented or ameliorated through lifestyle modification in mid-life, as well as risk-factor modification that includes the physical and social environment [5, 10].

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From the health promotion perspective, frailty may be prevented or its onset retarded by nutrition and physical activity [11–13]. The frailty phenotype may be detected in community screening using a simplified questionnaire without the need for measurements or administration by specialist healthcare personnel, incorporated as a part of general practice routine assessment, or part of the health and social needs assessment [14, 15]. Intervention strategies are also in place, recent guidelines being recently promoted in the Asia-Pacific region for the management of frailty [16].

There are also increasing numbers of publications describing the role of frailty assessment in investigation and management of diseases in various specialties such as oncology, cardiology, and nephrology [17–19]. Frailty screening has also been described in Accident and Emergency Departments [20–22]. These developments are encouraging and provide momentum in re-designing fit-for-purpose health and social services to meet the needs of ageing populations [23].

Role of geriatricians as advocates in promoting this agenda

Geriatricians should function as advocates in promoting this agenda, by leading health services research in models of service delivery incorporating frailty assessment, as well as participate in re-shaping services for older people. In view of the increasing demand for hospital and primary care services from rapid population ageing, with a likely trend in increasing frailty and disability, geriatricians have a key role in helping shape frailty-oriented health policy and service delivery models. A good example is the case of Singapore, where geriatricians play a prominent role in working with health ministers to formulate ‘frailty-ready’ health policies, with screening and intervention taking place in the setting of community centres [16, 24]. Another example is the introduction of an automated rapid geriatric screening system with suggested investigation and management that has been introduced to family medicine doctors in St Louis, MO, USA [25].

Yet another example is the recent development in Hong Kong, a Special Administrative Region of China, which currently has the longest life expectancy in the world for both men and women. The government has recently commissioned a review of elderly services, together with new models of service delivery to meet the needs of population ageing. The essence of the recommendations has been reported in a policy report by a prominent think-tank advising the government. Frailty as an entity was included, together with health-enabling networks integrating health and social components to promote healthy ageing [26], as well as frailty screening at the Accident and Emergency

Departments. A major charitable foundation is also supporting a territory-wide model of primary care which includes screening of frailty and other geriatric syndromes in addition to blood pressure, glucose, and body mass index, based on the widespread existing network of elderly centres run by non-government organizations with data captured by smart devices and dealt with at a central point using big data technology (www.ioa.cuhk/en-gb/training/jockey-club-community-ehealth-care-project).

Diversions from recent research and public health discourse

However, this momentum may be in danger of being diverted by the lack of universal consensus on how to assess or measure frailty, promotion and research in related concepts in recent years. These factors affect the incorporation of frailty considerations into routine clinical management, design of health and social services, funding allocations, and formulation of health policies.

Assessment of frailty has been dominated by two apparently different approaches, the phenotypic versus the multiple deficit model [27]. Adoption of the phenotypic definition may be easier in the clinical setting, while the multiple deficit approach may be more appropriate for population research purposes since time and costs for measurements and investigations would be important factors for adoption into clinical management systems. The technological advances in automated data capturing may overcome these obstacles.

With the proliferation of frailty as a topic in ageing research, as shown by the numerous sessions and papers presented at the 2017 International Association of Gerontology and Geriatrics in San Francisco, USA, new entities are being featured such as social frailty, cognitive frailty [28], and psychological frailty. It may be argued that some are the risk factors for frailty, which represents an intrinsic property in the same way that high salt intake gives rise to hypertension. However, for health and social care professionals involved in providing direct service to older people who are being introduced to frailty as an entity that is preventable, reversible, and detectable, confusion results. At the same time, different groups continue to propose descriptors of ageing populations that includes the word ‘frailty’, although the concepts are similar to other more widely used instruments [29–31]. From social science researchers, there is also an opinion that the term frailty may be stigmatising and not acceptable by older people themselves [32].

The World Health Organization’s response to ageing populations resulted in several reports: the promotion of the Age-Friendly City concept (www.who.int/ageing/age-friendly-environments/en/); the Healthy Ageing Report

(www.who.int/ageing/publications/world-report-2015/en/), the Integrated Care of Older people (www.who.int/ageing/publications/guidelines-icope/en/), the use of mobile technology in primary care, or mAgeing [33], and the introduction of the term ‘intrinsic capacity’ to emphasize the life course approach. A common theme to all is function as a main outcome, with discussions on what indicator(s) may be used. There are also efforts to ‘map’ frailty components into the International Classification of Function Disability and Health framework (body structure, body function, activity, and participation) (www.who.int/classifications/icf/en/).

The National Institute of Health has highlighted another related area for funding: resilience, which may be applied to cellular components, psychosocial, physical, and the community. At its core is function and response to stressors. There is an overlap with the frailty phenotype definition and concept [34–36].

The way forward

It is extremely encouraging to see the proliferation of research agenda on frailty and related concepts, as a key accompaniment of population ageing. However, there is a need to develop parallel service research with health service models and economic evaluations, and the inclusion of frailty into clinical management protocols, and as a summary health outcome when examining physical– and social–environmental health impacts for older people. Only with such data can frailty be established as a ‘real’ and very relevant concept for ageing population and older people in the service sector, rather than a fashionable topic of research.

Compliance with ethical standards

Conflict of interest The author declares that she has no conflict of interest.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent For this type of study formal consent is not required.

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