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2012 – That was the year that was

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Abstract

Geriatric medicine has an encyclopaedic sweep, reflecting the complexity of both the ageing process and of our patient group. Keeping up with, and making sense of, the relevant scientific literature is challenging, especially as ageing has increased in prominence as a focus of research across many branches of the sciences and the humanities. This review of research published in 2012 in generalist, geriatric medicine and gerontology journals has been compiled with a view to extracting those aspects of research into ageing which could be considered relevant not only to the practice of geriatric medicine, but also to our understanding of the ageing process and the relationship of geriatric medicine to other medical specialties and public health. The research discussed includes new insights into global ageing and the compression of morbidity; nosological, clinical and therapeutic aspects of dementia; an innovative study on the microbiome and ageing; epidemiological perspectives into multi-morbidity; an overview of the impact of the first waves of Baby Boomers; fresh thinking on geriatric syndromes such as orthostatic hypotension, kyphosis, urinary incontinence after stroke, frailty and elder abuse; an update of the Beers criteria and the first stirrings of recognition of the longevity dividend in the biomedical literature.

Keywords: *ageing, geriatric medicine, gerontology, research, global health, 2012*

Geriatric medicine has an encyclopaedic sweep, reflecting the complexity of both the ageing process and of our patient group. Keeping up with, and making sense of, the relevant scientific literature is challenging, especially as ageing has increased in prominence as a focus of research across many branches of the sciences and the humanities. As geriatricians tend to blend the inspirational with the pragmatic, even this challenge of tackling a vast literature has been met by the development of effective search filters for literature relevant to geriatric medicine, using a new concept 'number needed to read', a delightful parallel to the public health concept of 'numbers needed to treat', sharing the goal that this number should be as low as possible [1].

Over the course of 2012, a wide range of research papers has added to our knowledge of ageing and health, although research in generalist journals related to older people often has a frustrating lack of critical gerontological insights and perspective, sometimes picking up on data and concepts that have been well-established for some time in geriatric medicine: gerontology for slow learners, so to speak.

In reviewing the papers that made an impact, I have chosen those papers that represent how ageing is slowly becoming mainstreamed in general journals, those which display fresh and original thinking about older people and those which refresh the key role of geriatric medicine in shaping humane medicine for older people.

The outer world and the inner world

In terms of the wider context, the Global Burden of Disease study published at the very end of 2012 confirmed the global nature of ageing, with marked increases in lifespan across most continents and a continuing switch from communicable to non-communicable disease [2]. One of the most major theoretical and practical issues is whether the ageing of our populations is marked by an expansion or contraction of disability. At first sight it appears that an increase in healthy life expectancy has occurred, albeit at a slower rate than life expectancy. It is still not immediately clear whether it is an increased level of detection or true expansion of disability, and the language is often unhelpfully dichotomous in terms of health and disability, speaking of years 'lost' to disability.

The list of the 10 leading causes of years lived with disability—low back pain, major depressive disorder, iron-deficiency anaemia, neck pain, chronic obstructive pulmonary disease, anxiety disorders, migraine, diabetes, and falls—includes only one geriatric giant, although a number of conditions relevant to later life. There is also

evidence of increasing prominence of Alzheimer's disease, which has risen to 25th on the list, from 29th.

The benefit to all of a global health approach to ageing is apparent from a study on dementia in middle-income countries from the active and innovative 10/66 consortium [3]. As well as providing further support for the cognitive reserve theory, in particular the protective effect of education, literacy, verbal fluency and motor sequencing on the development of dementia, the study demonstrated a high mortality associated with dementia as well as undermining the myth that dementia is not common in low- in middle-income countries.

Moving from the outer world to the inner world, one of the most major shifts in our view of our relationships with microbes is the recognition of the microbiome and the importance of maintaining our rich and varied natural flora, the topic even making the cover of the *Economist* during 2012. A ground-breaking study demonstrated significantly less diverse gut microflora in frail older people compared those living in the community [4]: the separation of gut microbiota also correlated with co-morbidity, nutrition and markers of inflammation. This study suggests a further role for diet in in healthy ageing, that of the maintenance of an appropriately diverse gut microflora, as well as further important arguments for reducing antibiotic usage.

Multi-morbidity and the future of geriatric medicine

Although geriatricians know from their practice that multimorbidity increases with ageing, this reality still has to pervade much planning for chronic disease management as series of single illnesses, as was obvious from the 2011 Declaration by the United Nations. A major study on the high degree of multi-morbidity among those with chronic disease, starting in middle age, was a helpful antidote [5]; the authors recognised the unique contribution that geriatricians can make in responding to this complexity but were nihilistic about its development, a premise vigorously contested by the European Union Geriatric Medicine Society in the ensuing correspondence.

Perhaps the authors were privy to a rather gloomy debate in a major US journal of internal medicine addressing the crisis in the recruitment of geriatricians in the USA [6, 7]; however, the resulting correspondence suggested that there is life and vibrancy in the specialty. The increasing presence of academic geriatric medicine on the wider academic stage is attested by an excellent review on what physicians need to know about frailty in a major journal of internal medicine [8].

Successful ageing and the ageing of the baby boomers

The mechanisms for successful ageing are also hugely important, and drawing the threads of the biopsychosocial model together can be difficult. From a societal perspective, the importance of a life-course perspective was reaffirmed by a large study from the SHARE project showing strong links between childhood living conditions and the odds of ageing well into later life [9]. A fascinating insight into a novel psychological paradigm associated with successful ageing is that of the ability to be able to disengage from regret over past events and actions [10]. This opens the possibility of encouraging training or therapy focusing on undue regret over past actions or events.

The concept of ageing is itself a moving target, as illustrated by the publication in 2012 of a special issue of the *Gerontologist* in recognition that the first of the Baby Boom cohorts became 65 in 2011, a major transition for the US population over the next two decades. Although largely focused on the USA, the range of papers is broad and thought-provoking, with marked heterogeneity among the Baby Boomers, extraordinarily long spans of intergenerational contact and a transformation of political roles from 'dependent' to 'contender'. One particularly worrying paper showed that Baby Boom carers engaged in markedly less healthy life-style than non-carers, including smoking, and a diet of junk food and soft drinks, thereby clearly putting themselves at risk of disability and chronic disease [11].

It was also noticeable that ageism persists into these generations, mostly driven by perceptions of frailty and illness. Ageism remains a constant unhappy theme throughout our practice of geriatric medicine, but the impact of negative perceptions of ageing among older people on their own health has been relatively under-researched. An innovative study revealed that older people with positive attitudes to ageing manage transitions through disability more successfully than those with negative attitudes [12]. This should motivate us to continue to combat ageism wherever we find it, but also possibly opens up some interesting therapeutic avenues.

Fresh thinking on old syndromes

For geriatricians there is a constant tension between using the accumulated knowledge of medicine, yet needing a phenomenological perspective because much of the historical classification of illness has been developed by studying single illnesses in younger people. There continues to be a need for careful observational research to develop an articulacy about the diseases of later life.

One of the most elegant studies of the year was a study of the associations between geriatric hypotensive syndromes—orthostatic, postprandial and carotid sinus hypersensitivity—and classic markers of cardiac autonomous dysfunction [13]. There was no difference in these indices among those with hypotensive syndromes and controls, confirming what many geriatricians intuitively understand: that hypotensive geriatric syndromes represent a materially different condition to the classic descriptions of the syndromes as described by neurologists and cardiologists in younger people. This paper provides

a platform for fresh thinking on hypotensive symptoms for older people: perhaps a helpful next step might the development of an index of subjective orthostatic symptomatology which is valid for older people

Understanding kyphosis associated with osteoporosis represents a similar challenge, as it is clear that there is huge variability between the degree of kyphosis for any given degree of osteoporosis. A study showing an association with spinal muscle density was one of the interesting papers of 2012, showing significantly reduced odds of kyphosis with increasing spinal muscle density [14]. This raises prospects intervening through exercise and nutrition to allay the onset of kyphosis, a troubling syndrome for older people.

In a clear indicator of the need for a geriatrician perspective in important age-related diseases such as stroke, William *et al*. performed the first ever prospective and longitudinal survey of urinary incontinence after stroke, indicating that more than a third of those after a first overt stroke suffer from urinary incontinence at 3 or 12 months: urinary frequency is experienced by almost one in five, and nocturia by 80% [15].

Frailty

No review of the year in research could bypass frailty, which has attracted an enormous focus of academic attention, with much debate on models, potential indices and possible treatment. A helpful systematic review on frailty screening in older patients with cancer clarified that no screening tool or system is yet sufficiently robust, and that comprehensive geriatric assessment for all may remain the best approach until the science matures [16].

In terms of aetiology, a major study from Newcastle confirmed an association between inflammation and frailty in later life, but not between frailty and immunosenescence, telomere length, markers of oxidative stress or DNA damage and repair [17]. There is also increasing interest in understanding and detecting pre-frailty [18].

Medications

The area of prescribing and older people also saw innovation, with a major updating of the Beers criteria, almost a decade after the last major review [19]. Although the European STOPP and START criteria have posed stiff competition for the Beers criteria, particularly in terms of also including a focus on medications which should be started, the importance of constantly updating such measures of appropriate prescribing were given impetus by a major European study of polypharmacy in nursing homes [20]. This showed extraordinarily high levels of prescribing, perhaps a measure of the lack of defined medical standards demonstrated in the majority of European countries in a recent survey [21], and in turn demanding a more forceful and better-coordinated approach to medical care of nursing home residents in Europe.

Another aspect studied in some depth in geriatric pharmacology was the continuation of dementia medications into the later stages of Alzheimer's disease, a debate that continually surprises me—no similar controversy seems to occur for other neurotransmitter replacement strategies! A major study has suggested modest benefit for those maintained on cholinesterase inhibitors and memantine compared with those for whom they have been stopped [22].

Dementia

Dementia is one of the most fascinating of the conditions encountered in daily practice by geriatricians. For the many of us who feel frustrated by the artificial and forced nature of trying to contain the rich phenomenology of dementia into later life into existing diagnostic categories [23], a chord was struck by an elegant paper characterising dementia in later life as a complex geriatric syndrome [24]. Another remarkable aspect of dementia is the degree to which perception by patients of their deficits vary. As a geriatrician, my tendency had been to assume that this was a form of anosognosia: a study viewing awareness through the biopsychosocial lens allows for an important broadening of the factors involved, which include the quality of the relationship with the carer, sociodemographic patterns, affective function of the person with dementia, as well as the neuropsychological functioning of the person with dementia [25]. These patterns are of significant interest, given the strong promotion of the concept of early diagnosis in many national strategies on dementia, including the UK strategy.

Transitions of care with dementia provided a focus for both US and European researchers in 2012, with both demonstrating higher levels of care transitions for those with dementia compared with those without, with an accelerating tempo towards the end of life [26, 27]. However, the Finnish researchers noted reduced care transitions for those with dementia who were resident in nursing homes at the beginning of their study period. These studies mandate at least two levels of intervention: in the first instance to attempt to reduce the number of transitions, given how disruptive they are for those with dementia, and also to ensure that the transitions are not only age-attuned but also supportive for those with dementia.

Elder abuse

The elder abuse literature continues to grow from a small empirical base. Two papers give new perspectives on financial abuse, the form of elder abuse which physicians feel least well equipped to manage. The first paper outlines the areas that need development in terms of training health professionals to detect and manage financial abuse of older people [28]. A fresh insight into a contributory factor in vulnerability to financial abuse arises from a study

demonstrating a reduced ability to detect traits of untrustworthiness by older people compared with younger people, underpinned biologically by reduced activation of the anterior insula [29].

The longevity dividend

There is a danger that our discourse in discussing the care of older people may become so focused on the losses and illness of later life, even if our intention is to provide effective remediation, that we may fail to appreciate the longevity dividend inherent in population ageing. As few studies set out specifically to display the longevity dividend, its detection can require an elliptical reading of the literature. One elegant illustration of the longevity dividend was provided by a major study on the routine use of advice for those with medical conditions relevant to medical fitness to drive [30]. Both before and after the intervention, drivers over 70 had the lowest numbers of crashes per driver, despite high levels of both disease and co-morbidities. Rather than viewing older drivers as a hazard, we should place an increasing focus on a better understanding of what it is that makes them safe in the face of significant disease and disability, and whether these attributes can transferred to younger generations through either training or regulation.

The most encouraging change in perception of the longevity dividend was signalled early in 2012 when the *Lancet* displayed text on its front cover proposing a major rethink of ageing, arising from a communication from a range of gerontologists and geriatricians from around the globe [31]. This is the first time that a major medical journal has promoted such a positive attitude to ageing, and is suitable envoi for a year that was rich in research and reflection on ageing: 'Ageing is most often framed in negative terms, questioning whether health services, welfare provision, and economic growth are sustainable. We argue that, instead of being portrayed as a problem, increased human longevity should be a cause for celebration.'

Conflicts of interest

None declared.

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