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Geriatric-HIV medicine is born

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Ten years ago, the first modelling studies showed that the life expectancy of people living with HIV who demonstrated good immunological recovery is close to that of the general population [1]. Now we know that aging with HIV is a fact of life. With this realisation has come a move to understand healthy life expectancy in people living with HIV. In this effort, the remarkable progress in HIV/AIDS medicine can benefit from what has been learned in geriatric medicine. Over many decades, geriatrics has developed clinical principles and practices that, in their focus on function (and not just disease), aim to enhance the quality of life of elderly people.

In this issue of *Clinical Infectious Diseases*, a review by Singh and co-authors [current issue] celebrates the birth of "geriatric-HIV medicine". They forecast how it can rapidly catch up with related medical specialties, such as "ortho-geriatrics" [2], "cardio-geriatrics" [3,] or "onco-geriatrics" [4]. The prerequisite for geriatric medicine and HIV medicine to interact is that they share some basic geriatric nomenclature. This is not an option: by speaking the same language, we can share principles and tools.

Some concepts are key. First, as they point out, there is more to understanding the complexity of health in aging than assessing non-infectious comorbidities and multi-morbidity. Another centrepiece of the argument is that as people with HIV infection live longer, many are developing conditions and syndromes that are common in older adults, but are only loosely related to disease counts. Two people with the exact same comorbid conditions can have very different functional aging trajectories; in contrast, the degree of frailty provides a reliable prognostic guide, something seen in many settings, and across the life course[5 6,7 8]. This also appears to hold in HIV[9]. The transition from evaluating co-morbidities in HIV to implementing comprehensive geriatric assessment requires both structural and cultural changes in patient evaluation. Such changes will gain by understanding frailty[10 11]. As a measure of biological age frailty, better that chronological age, can describe both a health state and a geriatric syndrome. Frailty, more than multimorbidity, allows us to grasp the complexity of age-related pathophysiologic changes and does so in ways that can alert us to effective clinical interventions[12].

Geriatricians in HIV clinics?

Singh and colleagues examine several geriatric consultation models: referral to a geriatric clinic, assessment within a PLWH practice, and/or assessment in home. We do not yet know which is the most effective combination of resources, and but whatever is available should be explored. We will need to learn how to screen for frailty, how to assess and treat common geriatric syndromes such as delirium, impaired mobility, falls and polypharmacy. Some of this will require adaptation of what otherwise happens in aging. For example, will there be more specific pathways to delirium reflecting specific neurological consequences of HIV or of the medications used in its treatment? Likewise, tools that have worked well in geriatric

assessment may need to be adapted to the assessment of HIV-infected persons. Vulnerabilities for disability and obstacles to care that are HIV-specific must also be taken into consideration, including social vulnerability and interaction between HIV and aging stigma. Each of these questions can help make up a rich and important research agenda, likely to advance disciplines in both care of older adults and persons living with HIV.

Opportunities for innovation in care of people with complex needs

Given the shortage even now of geriatricians in many developed countries, although some centres may lead in developing a needed Geriatric-HIV Medicine academic core, most HIV clinics wishing to incorporate the lessons of geriatric medicine can expect to add to their current offerings what works well in the assessment of aging people in general. Such work should be undertaken in the spirit that it can inform more generally the care of people with complex needs, especially as they age[13 14]. Further, we need not repeat their more painful lessons to learning from geriatricians. For example, confusion arises from the variable meanings of the term “comprehensive geriatric assessment”. In the UK in particular, it is understood to also incorporate management, and not just evaluation. In contrast, in many North American context geriatric assessment can be synonymous with mere risk stratification – reflecting an assumption (of people unaware of the active and evolving evidence base for its effectiveness) [15 16 17] that there is little to be done for frail patients other than to “place” them appropriately (for example by assigning them to the correct level of long term care). Similarly, as with other cognitive (as opposed to procedure-based) specialities, physician costs historically have been inadequately captured in the fee-for-service environment. Singh et al. note the increase in subspecialty consultation (citing for example cardiology, nephrology, oncology) for people living with HIV. In frail patients, this has proved to be a mixed blessing: left to their own devices, subspecialists constitutionally have a narrow focus, typically merging their own interventions with what is desirable. This is not restricted to physicians: a painful lesson, oft learned, is that multidisciplinary teams do not always make for effective interprofessional collaborative practice. One useful remedy, somewhat worked out in the care of older people and sometimes used in HIV care[18], is patient-centred language and individualized outcome measurement[19].

The HIV community also offers opportunities particularly for evaluating innovative communication strategies. Younger groups of people ageing with HIV represent the first "digital generation", who are likely to benefit from information and communication technologies designed to address health needs both in wealthy and resource-limited countries [20].

Particular opportunities arise in relation to polypharmacy. With the adoption of combination antiretroviral

therapy (ART), most HIV-infected individuals in care are on five or more medications. In a geriatric medicine context, this puts them at risk of harms such as decreased medication adherence, organ system injury, hospitalization, geriatric syndromes (falls, fractures, and cognitive decline) and mortality. What can be considered as polypharmacy in HIV/AIDS? Which medications put ageing people at risk? Will broad principles of de-prescribing in polypharmacy hold or require adaptationI? ID physicians have learned little by little to deal with an increasing number of co-morbidities and apparently have progressively added drugs for comorbidity treatment and prevention above ARV. We still complain under-prescribing of drugs like statins in HIV but in fact over-prescription of drugs is already present in HIV care[21]. Geriatric consultation often results in de-prescribing drugs rather than adding more and geriatric medicine. Even so, emerguing evidence that polypharmacy per se might be less important than frailty in understanding risk in relation to medication use[22 23].

Research tools in HIV-geriatric medicine are much needed. Current clinical trials are unlikely to inform or enhance the treatment of older HIV+ patients. The choice of appropriate investigative clinical endpoints is important to assess the benefit of interventions, including ART therapy. The standard HIV research endpoints of virologic suppression and CD4 improvements may not be the most important tools with which to evaluate the risk/benefit ratio, even in ART clinical trials involving older HIV+ persons. Competing non-HIV risks for death and morbidity, and greater risk for acute and chronic ARV-related toxicity must also be considered.

The European Medical Agency (EMA) recently suggested combining physical performance and patients reported in formal clinical trials (e.g. using a combined outcome of walking faster than 0.8 m/s AND reporting Short Physical Performance Battery improvements) in assessing investigational drugs for treatment of sarcopenia in frail patients [24]. This seems like a useful precedent to apply to investigational antiretroviral agents for elderly people, as might also be differences in the degree of frailty between treatment groups. Geriatric assessment has been incorporated into many clinical trials, involving cancer treatment. Even so, challenges remain in using such assessments as criteria for interventional stratification or randomization, in part because of the lack of standardization of definitions of frailty and disability, and due to lack of studies about their measurement properties in clinical trials, although recently this appears to be changing. What is needed however is a better understanding of their responsiveness / sensitivity to change.

Every advance in medicine brings new questions and new opportunities. It is an exciting and welcome challenge now to have to address how best to care for people living with HIV as they enter old age.

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