State of the Art in Anti-Aging Trends

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A text on successful aging would be incomplete without a discussion of what may, or potentially will, be done to retard, delay and, in general, avoid the pitfalls of aging. This has been a universal human pursuit as far back as we have been sentient and, at this time, science may actually be making some reasoned progress in this direction. Research is now offering real hope in extending lifespan in both qualitative and quantitative terms. Scientific inquiry in aging is growing almost exponentially. For example, a Pubmed search for resveratrol returns 3,751 different papers, while a search for anti-aging medicine returns 1,989 results.

There are numerous, well-funded anti-aging research centers populated with first rate scientists running at full tilt. The National Institute of Aging is among them. The National Institute of Aging has a program known as the "Interventions Testing Program," which selects and evaluates a handful of promising anti-aging compounds annually. The equivalent testing of each substance chosen occurs in 3 different independent laboratories to verify that all of the results are accurate and replicable. With this system, promising compounds are rapidly and systematically ruled in or out for future research. The pursuit of anti-aging research is unquestionably established and moving forward rapidly.

The pharmaceutical industry is involved in anti-aging more indirectly. The US Food and Drug Administration (FDA) does not classify aging as a disease; thus, it is not possible to have the appropriate trials for FDA approval, even if a drug was available that could be shown to extend maximum human lifespan. Because of this, drug companies seek pharmaceuticals which alleviate aspects of aging and, if it turns out they might extend maximum lifespan, that would be a nice bonus. Pursuing drugs that extend lifespan is generally consistent with drugs that inhibit or reverse diseases of aging, so the obstacle to research is not actually that daunting. If drugs do arise that extend maximum lifespan, then the political will to classify aging as a disease might arise, in which case the FDA would have to classify aging as a disease and thus allow clinical trials of anti-aging drugs to proceed.

Other issues arise as well in this discussion, including the political and philosophical issues of anti-aging. Politically speaking, anti-aging medicine is complex. Issues

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of allotment of resources have the potential of overwhelming society. Already the entitlements promised to our older generations are demanding vast resources. These issues will continue to become more imminent as lifespan is prolonged. Perhaps someday we will have productive seven hundred year olds mentoring and providing resources for the sub-two century crowd, although before that time there are sure to be conflicts and perhaps even generational or economic warfare over resources to sustain vast populations who refuse to die.

Although this sounds like science fiction, some scientists embrace the possibility of millennial lifespans. If this were to happen, would it deprive new human life from the resources they require? Who will be entitled to the magical elixirs that may come forth in the study of biogerontology? Others argue that such a future is most unlikely and that there are finite limits to lifespan that will not be exceeded.

Where do you stand on these questions? What sort of moral issues might arise in a world populated with Methuselahs? Will the geriatric population enjoy a life of parasitic leisure provided by younger generations or will they provide for their own needs? Might it become true that the geriatric population enjoys such good health that they are the most productive members of society, while at the same time using the least resources? After all, they have wisdom and experience and are less likely to get bogged down in issues they learned to conquer years ago—issues that frustrate younger people, making them inefficient and unpredictable compared with more mature populations. Society may benefit in unimaginable ways from the influence and labors of the seasoned segment of the population. The traits of youth, although wonderful, are generally improved, having gone through the trials of experience.

All of these musings may be moot; it is currently true that despite all the optimism currently enjoyed by the anti-aging movement, it remains, at this time, according to the dictates of the scientific method, that there are no anti-aging medicines or any other processes that effectively extend maximum human lifespan.[1]

As physicians, we will be fielding many questions on these issues, so it behooves us to become familiar with biogerontology and the various ways it is represented. Which elements of this discipline enjoy legitimacy and which aspects are dubious? Although terms in this article are used almost interchangeably, there are some subtle contextual distinctions. The scientists and clinicians who remain in the domain of peer-reviewed research do not want to be associated with those proponents of anti-aging who profit off of dubious claims. Nor with those who twist research to manipulate consumers who are susceptible to their claims of providing actual extension of maximum human lifespan, as well as other too-good-to-be-true claims. The vast amount of quackery and financial fraud inflicted in the name of anti-aging is obviously not something one wishes to be associated with. We will try to further delineate these general distinctions at this time.

One school of thought holds that aging is a good and natural thing to be embraced as a necessary and positive aspect of life. To this school, aging, an inevitable process of decline, should be approached in a gentle, palliative way. This group trends toward improving the quality of existing lifespan and pursuing the idea of “compression of morbidity” (ie, minimalizing) time spent suffering from disease toward the end of a predominately healthy lifespan. This school of thought maintains standards in keeping with principles of the scientific method. These scientists study biogerontology and contribute to and may practice in the field of geriatrics. They aggressively research all aspects of aging with an open mind while remaining firmly grounded in the here and now. Although they are not opposed to science fiction, they are not investing in lots on the moon while they are still cheap. The material they produce is found in peer-reviewed, scientific journals and they remain unequivocally in the scientific milieu.