

## When is old age for cardiologists? An evidence-based historical approach

To the Editor,

It is estimated that approximately 25% of the physician workforce is over the age of 65 (1). There are growing concerns regarding the relationship between cognitive function, competency, performance, older physicians, and patient safety. Regarded as the father of modern medicine, Canadian physician, Sir William Osler (1849–1919) addressed medical students and practitioners in his famous book *Aequanimitas* that, “The effective, moving, vitalizing work of the world is done between the ages of 25 and 40” (2, p.398), and “as it can be maintained that all the great advances have come from men under forty” (2, p.399). Questioning the accuracy of this hypothesis in the field of cardiology, we evaluated 180 cardiovascular eponymic signs reported between 1761 and 1981, within a certain methodological limitation (3). The average age of death of this cohort was 73.4 years, and the average age of discovery of the sign was 44.7 (median 43) years. Osler believed that physicians should retire at the age of 60. If that were the case, 26 (14.4%) of these discoveries that occurred past the age of 60 years would presumably be not possible. Similarly, our historical data confirms that physicians continue to be productive, at least in terms of their discoveries of clinically based signs, past 40 years of age.

There is some literature that has specifically evaluated the relationship between older age, competency, performance, and cognitive decline among physicians within the various medical specialties. We currently lack sufficient knowledge regarding the extent and severity of the problem among cardiologists. Observational studies using national databases found mixed results related to patient morbidity and/or mortality caused by surgeons 60 years of age and older (4). Cooney and Balcezak reported outcomes among 141 clinicians, 70 years of age and older, who were required to undergo neuropsychological assessment and ophthalmologic examination as part of their medical staff reappointment. They found that among 125 physicians, cognitive deficits were identified in 18 (12.8%), causing them to voluntarily cease practice or move to a proctored setting (5). No information was available regarding these physicians’ specialties or the level and type of their current engagement in the workplace.

Martins et al. (6) using a lexicon analog of the Wisconsin Card Sorting Task evaluated the cortical pathways involved in planning and executive function in young and elderly persons without neurological or psychiatric disorder. They found that these pathways are activated later in older individuals suggesting that the brain of aged persons is much more discriminatory and learns to make adjustments only when deemed necessary (6). Thus, the brains of older persons are not slower but main-

tains the same level of performance compared to younger person by adjusting to situation only when required and thus avoids consuming excess energy (6).

Cognitive performance is currently assessed for those cardiologists who choose or are required to take the Cardiovascular Disease Board Examination. It is recognized that performance is probably not best evaluated through abstract cognitive tests. There is no formal standardized method for assessing ongoing performance competency involving procedural tasks among cardiologists. Clearly, older cardiology physicians provide value to this field of medicine, and many are interested after retirement in being actively involved in teaching and mentorship. Age is relative, and decisions regarding mandatory retirement requirements should be avoided as not all adults experience decline in cognition. There are ample examples in the arts, sciences, medicine, business, and religion where older people are in leadership positions and are the most innovative and productive during this period in their life (7). The brain remains plastic throughout life, and some aspects of cognitive function such as arithmetic, comprehension, emotional perception, and emotional control is well maintained in older adults (8). Physicians should be supported and encouraged to continue to practice assuming their mental and physical health allows them to safely and meaningfully contribute to medicine and science. The question is whether cognitive and physical competency should be determined, and if so, what is the best method of assessment?

Emerging evidence suggests that it may be prudent and in the best interest of patient safety to consider some means of neurocognitive assessment, particularly for ageing physicians. When to begin screening, how best to administer these and other tests (e.g., audiogram and test of manual dexterity), and under which conditions require further discussion and study.

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DOI:10.5152/AnatolJCardiol.2021.520

