Atherosclerosis: The XXIst Century Epidemic
A Meeting at the Vatican

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“So oft in theologic wars,
The disputants, I ween,
Rail on in utter ignorance
Of what each other mean,
And prate about an Elephant
Not one of them has seen!”
—John Godfrey Saxe’s version of the Indian legend,
“Blind men and the elephant”

Major advances were made in the past decade in the understanding of endothelial injury and the key role of inflammation and atherosclerosis in cardiovascular disease (CVD). A large number of trials for drugs and devices have been successfully completed and it became clear that prevention should be at the core of efforts against CVD. However, every single publication on CVD highlights the “atherosclerosis epidemic” and the continuously increasing burden of vascular events faced by people from all regions in the world. The question is, can anything be done to stop and reverse this devastating trend? To explore possible answers to that question, a meeting was convened at the Pontifical Academy of Sciences in the Vatican.

Of the approximately 60 million people who die per year worldwide, 18 million (30%) do so as a consequence of CVD. In other words, 160,000 deaths occur daily of which almost 50,000 are secondary to CVD (equivalent to 100 Boeing 777 aircraft full of people crashing everyday). All of the known risk factors for CVD similarly affect all races and ethnicities.1 More than two thirds of vascular events occur in people with few risk factors and close to 80% affect low-income regions with a higher case-fatality rate compared with the more affluent countries.2 In China and India, CVD will soon overcome communicable diseases (HIV, malaria, tuberculosis) as the Number 1 cause of death. High blood pressure, the most important modifiable risk factor, causes 7 million deaths per year, and its population-attributable risk for stroke and coronary heart events is 54% and 47%, respectively.3 However, only 2 of 3 people with hypertension are diagnosed and blood pressure is uncontrolled in the vast majority of treated patients. Excessive weight has reached epidemic proportions, duplicating the affected world population from 5% to 10% between 1980 and 2008. In the United States, at the current rate, by Year 2030, obesity prevalence in men and women 40 to 50 years of age will approach 60%.4 Moreover, recent data link vascular risk factors to degenerative brain disease of the Alzheimer type.5 The health, economic, and social burden of CVD is tremendous, yet it is a largely preventable and treatable disease in which we are missing the target. Estimates by the World Health Organization and other organizations suggest that if known and available measures and guidelines were appropriately used, CVD consequences would decrease by up to 80%.6,7

Management of the different conditions leading to atherosclerosis spans various medical specialties such as epidemiology, genetics, cardiology, stroke, lipids, diabetes, hypertension, and others. However, expertise is developed in separate arenas because each specialty has individual scientific meetings and its own specialized medical journals. Atherosclerosis is a complex and multifaceted problem too big to be tackled by 1 silver bullet. As geographical borders become less rigid in a globalized and technologically changed world, medicine should aim to integrate the knowledge from different disciplines by instituting a collaborative effort.

Responding to the great concern of this growing epidemic, the Pontifical Academy of Sciences under the guidance of its Bishop-Chancellor Monsignor Marcelo Sánchez Sorondo decided to organize a Vascular Meeting that in some way would provide an alternative view to the CVD problem. A title suggestive of the purpose of the meeting was selected, “Atherosclerosis: The XXIst Century Epidemic.” Paraphrasing someone who said that TEAM is the acronym for “Together Everyone Achieves More,” to be a truly integrated meeting, speakers had to be representative of all the areas related to atherosclerosis. Following this comprehensive rationale, the state-of-the-art in cardiology was presented by Eugene Braunwald, Valentin Fuster (United States), and Pierre Amarenco (France); lipid management by Terje Pedersen (Norway); obesity and diabetes by Arne Astrup (Denmark); vascular epidemiology by Shanthi Mendis (World Health Organization, Geneva); vascular research by Walter Koroshetz (National Institutes of Health–National Institute of Neurological Disorders and Stroke, US); vascular cognitive decline by John O’Brien (United Kingdom); vascular surgery by Felix Unger (Austria); and hypertension by Conrado Estol (Argentina). After the meeting, and introduced by Monsignor Sánchez Sorondo, Dr Braunwald and I had the
privilege to meet with the Holy Father who had a personal interest in our discussions (it is public knowledge that the Pope had suffered at least 1 vascular event at the time he was still a Cardinal).

The venue of this meeting merits a brief description. The Pontifical Academy of Sciences was established in Rome in 1603 under the patronage of Pope Clement VIII and the leadership of Galileo Galilei. It was lastly refounded in 1936 by Pope Pio XI who gave it the present name. Since then, the objective of the Academy has been “investigating specific scientific subjects belonging to individual disciplines and with the promotion of interdisciplinary co-operation.” The headquarters of the Academy is the “Casina Pio IV,” built by the architect Pirro Ligorio in 1561 originally as the summer residence of the Pope. The Academy is composed of a number of academicians selected independently of national, political, or religious origin, including at present >20 Nobel Prize winners (many appointed before receiving this award). The lectures presented at the meetings are published by the Pontificiae Academiae Scientiarum Scripta Varia. Life at the Vatican is in every sense a unique experience. Participants of an Academy meeting are all guests at the Domus Santa Marta (House of St Martha) built by John Paul II a few steps away from St Peter’s Cathedral for the Cardinals participating in the conclave in case of a new Pope’s election. For this reason, accommodations are comfortable yet austere with no WiFi access to protect the secrecy of the event it was built for. A nice uphill walk leads to the Academy through peaceful paths that not only overlook wonderful views of the Vatican apartments and museums, but also serve for the afternoon walks of the Holy Father (on 1 occasion, guards on our way standing at the edge of the narrow paths alerted us to the presence of the Pope). We also enjoyed the privilege of a 7 AM solitary visit to the Sistine Chapel and a quiet moment for reflection inside St Peter’s Cathedral at the time it was closed to the public the day of the Pope’s audience at St Peter’s Square. It seemed that the historical scientific context provided by the Pontifical Academy of Sciences was an appropriate venue for the purpose of the “Atherosclerosis” meeting.

After 2 days of fascinating individual presentations, a consensus statement was drafted by all participants. In summary, emphasis was placed on including prevention, more than acute treatment, as the message for large-scale audiences. Because risk factor modification should begin as early as possible in life, education about vascular disease, risk factor control, and healthy behavior was favored for inclusion in the mandatory school curricula. Regarding treatment, it was recognized that the limited number of existing vascular neurologists and the lack of access to adequate coronary and cerebrovascular care are high-priority problems. Other conclusions were that medications are underused or not economically accessible and thus the polypill may overcome economic and compliance limitations; that telemedicine has been proven effective in underserved world regions; that genetic research should advance to detect as yet unknown vascular risk factors and explain the outliers encompassing those with risk factors and no vascular events as well as those who do not have risk factors and have symptomatic atherosclerosis; and that high-income countries should lead and coordinate efforts devoted to decrease the number of events in low-income regions. At the meeting there was strong consensus in that our generation of physicians and medical societies has “the duty and responsibility to make Vascular Disease Prevention the number one priority in the World’s Health Agenda to ensure that Vascular Disease Prevention translates from wishful thinking to reality.”

Although science has made significant achievements in the research against atherosclerosis, all recognized vascular risk factors across the world are undertreated or just not treated. The present gap between theory and action in vascular disease results in a rising toll of premature deaths, survivors with disabilities, and an aging population with cognitive impairment.

The Vatican Meeting, “Atherosclerosis: the XXIst Century Epidemic,” contributed to creating better awareness of this problem by generating an interspecialty collaboration among world leaders of opinion to disseminate the contents of their valuable assessments and call attention to this devastating disease.

Disclosures

None.

References


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