

ATRIAL FIBRILLATION (AF) – a major global public health challenge
MEMO 09/09/2013

Atrial Fibrillation, a widespread cardiac arrhythmia, is a phenomenon often underestimated but responsible for significant cardiovascular and cerebrovascular morbidity and mortality, causing up to 20% of all strokes, increasing the risk of stroke five-fold if remaining undiagnosed and causing a huge burden on economic and health care systems.ⁱ

Cardiac arrhythmias are problems that affect the electrical system of the heart and cause abnormal heart rhythms that then can cause the heart to pump less effectively. Many arrhythmias have no known etiology but a number of factors can contribute to arrhythmias like coronary artery disease, high blood pressure, diabetes, smoking, excessive use of alcohol or caffeine, drug abuse and stress.ⁱⁱ

1a - People affected by AF in Europe and United States^{1,2,3}

1b – Lifetime risk of developing AF^{1,2}

1c – Increase of Prevalence of AF^{1,2,3}

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Disease prevalence and demographics - AF is the most common heart rhythm disorder in adults and occurs with increasing frequency as people get older. It is estimated to affect 1 in 25 adults 60 years or older.ⁱⁱⁱ AF is largely recognized as a “disease of the elderly” as at least 70% of patients are between the ages of 65 and 85. However, with a 1 in 4 lifetime risk of developing AF it also affects young people and for example compared to breast cancer and heart failure for woman at age 40 the probability to suffer AF is higher (see table 1b).^{iv} Over long periods the prevalence of AF has been estimated to be at least at about 1% of the overall population while a newer epidemiological study on AF conducted in Olmsted county estimates the prevalence in the population at approx. 2.5% (see table 1c).^v

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If the heart has been working irregularly for a long period of time, it can fatigue and go into heart failure. AF causes the upper chamber of the heart (=atria) to beat in an uncoordinated manner. The atria does not contract fully, causing that some blood that should have been pumped to the ventricles remains in the atria. This causes an irregular pulse and sometimes a feeling of fluttering or palpitations in the chest. Even worse, if blood remains in the atria after an episode of AF, it may pool and clot together. If the clot breaks free from the heart and travels the bloodstream, the risk of having a stroke increases.

AF as worldwide challenge - In any case the number of individuals with AF is projected to increase significantly (at least 3-fold by 2050) over the next decades.^{vii} Experts estimate the number of affected people to be at least 4.5 to 6 million in Western Europe and about 2.3 to 5.1 million people in the United States (see table 1a).^{viii} Although we do not have access to comprehensive global data, recent studies disclosed data for selected developing countries. Thus, annual prevalence in Brazil is estimated at 0.43 million people, China at 1.8 million people, India at 0.78 million people, Russia at 0.5 million people and Turkey at 0.23 million people.^{ix} Experts still see these numbers as an underestimate since 25% of people with AF do not experience symptoms like irregular or rapid heartbeat, shortness of breath, dizziness, chronic fatigue, fainting and/or chest pain and remain therefore undiagnosed for a long time.

Quality of Life (QoL) - AF symptoms have furthermore a significant impact on the quality of life of patients as they experience the symptoms as highly disruptive to their life, leading to side-effects like depression or anxiety.^x

Treatment options - There are several options to treat AF, the range is from daily medication (with AADs = Anti-arrhythmic drugs), implantation of medical devices (pacemakers), surgical and non-surgical procedures or a combination of these treatments.^{xi} Treatment choices are *SUPPRESSION AND CONTROL OF THE SYMPTOMS* by cardio-version, medication or medical devices OR *ELIMINATION OF THE CAUSE* by catheter ablation or surgical ablation.^{xii}

As mentioned, AF is generally associated with heart failure, hypertension, diabetes mellitus, and previous coronary heart disease although in large portion of patients there are no identifiable risk factors and thus no proven preventive strategies for the disease. Nevertheless, left untreated, AF can cause remodeling of the heart which may lead to irreversible structural changes and chronic AF. Adequate treatment of AF is therefore essential not only to control symptoms and reduce the risk of thromboembolism and stroke but also to minimize structural damage of the heart. More important, AF-related strokes tend to be more severe, disabling and fatal than other kinds of stroke and create a huge burden on patients, families and healthcare systems.^{xiii}

Healthcare and economic burden - The health and economic burden imposed by AF and AF-related morbidity is enormous. Healthcare costs related to treat AF are estimated at \$6.7 billion per year in the United States and at \$8.6 billion in Europe. The economic burden increases as hospitalization related to AF is associated with longer inpatient stay, lower rate of discharge to patients' homes and greater overall healthcare costs.^{xiv} The economic burden of stroke on the European economy is estimated at €38 billion per year according to Action for Stroke Prevention.^{xv} According to Rizzo et al, the economic burden of AF is substantial in developing countries too: \$221 million in Brazil, almost \$400 million in China, \$23.6 million in India, \$178 million in Russia and \$84 million in Turkey.^{xvi} The aging population in many countries will increase the burden further in the upcoming years. A proper management of AF is becoming increasingly important. See the example calculation of economic burden.^{xvii} (all \$-values in text expressed in USD)

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See Figure 3 in "[Atrial Fibrillation-Related Stroke: An Avoidable Burden.](#)" October 2012.

3a - Hypothetical illustration of the excess strokes and economic burden resulting from under-treatment of patients^{1,2,3,4,5}

CALL for ACTION – To reduce the negative impact of AF following factors are crucial: awareness creation and education of patients and General Practitioner (GPs), early diagnosis, increasing therapeutic choices (symptom-related drug medication vs. cause-related catheter ablation), patient management and improvement of patient outcomes. Collaboration between patient organizations, healthcare providers, policy-makers, medical societies and healthcare industry must be reinforced to ensure optimal, early treatment of AF-patients and to prevent AF-related strokes. Most important fields of actions:

- Training and education of patients
- Training and education of healthcare professionals (GPs, electrophysiologists)
- Including AF in national Healthcare plans, action plans and chronic disease catalogue
- Enabling equal and timely access to adequate care for patients
- Funding electrophysiological infrastructure (labs) (to conduct invasive, surgical treatments)
- R&D funds for novel therapies in AF

Improvement for a better future – Given the large portion of sufferers, the AF epidemic is predicted to significantly impact overall healthcare costs in terms of expenses for medication, medical testing and hospital visits and stays. Decreasing the number of strokes by treating AF at an early stage and preventing severe AF-related strokes and their costly consequences means ensuring that healthcare systems especially in aging societies are adequately prepared for this healthcare challenge.

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