Cerebrovascular disease in Italy and Europe: it is necessary to prevent a ‘pandemia’
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In Italy and Europe, strokes are the third most common cause of death and resulting invalidity. In the ever-increasing 80-years-old-and-over people, strokes become more serious due to the clinical presentation during the acute phase and the ten-times higher mortality, but also in relation to the twice as high resulting disability as for younger subjects. However, stroke prevention is possible both through correct behavioural habits and pharmacological means. Besides the well-known preventive effects of an adequate anti-hypertensive, anti-diabetic and/or anti-aggregant/anti-coagulant therapy, there are increasing evidences of the effectiveness of the anti-hypercholesterolemic therapy in stroke prevention. Moreover, a great part of the risk factors for the cerebrovascular disease coincides with those for cardiovascular disease, for which the correction of the former automatically involves a reduction in incidence of both pathologies. In this context, a statin’s rational use can therefore represent an important tool for the combined prevention of the two pathologies. Finally, different hypotheses link the origin of Alzheimer’s disease to that of progressive cerebrovascular dementia caused by cerebral microcirculation damage. It is plausible that the application of a suitable early prevention of the cerebrovascular pathology could bring to a more late slatentisation and less serious demonstrations of Alzheimer’s disease, when this is destined to develop. J Cardiovasc Risk 9: 143–145 © 2002 Lippincott Williams & Wilkins.

Introduction
In the 1999 WHO report, stroke accounts for the second highest cause of death giving an overall figure of 9.5% of all death causes, as well as being the seventh cause of invalidism. In Italy strokes are the third cause of death and resulting invalidism. In absolute terms, 130 000 stroke new cases (48 000 of them lethal) occur in Italy every year. Add relapsed cases to these figures and they then total 180 000 (equating to a newly diagnosed case every 3 min). Taking all ages into account, the total number of people hit by stroke is 800 000. The prevalence of stroke is lower among women than men aged over 80 years. If the actual rate of incidence stays constant, this will mean over 170 000 new cases each year in Italy and a prevalence of one million people hit by stroke in 2010, due to progressive population ageing. A projection study up to 2020, based on the Italian Longitudinal Study on Aging (ILSA) data, estimated a possible 1% annual decrease in incidence by the use of available therapies which could negate the rise in stroke frequency linked to population ageing [1].

In Italy, the average cost of treatment during the first 3 months (including hospitalization and rehabilitation) is about €6000; a total cost of more than €1000 000 a year for this phase alone. To these expenses must be added those encountered in the following period about which not enough is known to make a suitable estimate. In the growing age group of 80+ year-olds, strokes become more damaging and have a 10-times higher mortality rate. Residual disability incurs costs twice as high as for younger sufferers, but with less intensive costs because of the lower use of diagnostic equipment or therapeutic remedies in the elderly.

Psychosocial factors are fundamental to stroke prognosis and influence management in all phases. The single elderly are at particular risk as are invalid patients with physical and/or mental handicaps or others with low incomes. It is estimated that before 2010 the over-70s will total 12.4 million compared with 7.8 million of the under-14s, leading to an increase in
years lived with chronic illness. Fifty-five per cent of people aged over 70 and 47.4% of those aged between 65 and 74 are not in good health. Moreover, 11% of the Italian elderly have a poverty index (i.e. the percentage of income spent for eating) which is greater than 50–60%, that is, very close to real poverty. After a stroke these patients often ask for higher-grade help outside hospital than is actually available to them. With the growing number of ailing and dependent elderly, other resources will be needed in this field of public health. Finally, the dependence index on the working-age population ($P_{60+}/P_{20–59} \times 100$) increases in estimates for the first decades of 2000 and will create further difficulties in funding social policies (CERGAS-Bocconi Data 2000) [2].

Nevertheless, stroke prevention is possible through correct dietary habits, no smoking, increased physical activity [3] and pharmacological means [4]. The best results have been achieved by targeting individual cardiovascular risk [5], easily identified through personal and family history, hypertension, laboratories (lipid profile and glycaemia) and possibly cheap and noninvasive diagnostic techniques (carotid echo). Data from the North American Symptomatic Carotid Endarterectomy trial estimated that the risk of developing a stroke homolateral to the carotid stenosis varies in asymptomatic subjects from 7.8% for less than 50% stenosis to 18.5% for 76–94% stenosis during the following 5 years [6].

As well as the known preventive effects of an adequate antihypertensive, antidiabetic and/or antiaggregant/anticoagulant therapy, there is increasing evidence of the effectiveness of antihypercholesterolaemic therapy (especially with statins) in stroke prevention, mostly in people already affected by symptomatic vasculopathy [relative risk reduction (RRR) of 32%] [7]. The association between dyslipidaemias and stroke risk is supported by the observation that people with hyperlipidaemia have an increased prevalence of preclinical lesions (increased myointimal thickness) and frank atheroma both at carotid level and in noncarotid vascular areas. The same subjects have a higher incidence of lacunar infarction within the brain’s deep central zones, potentially causing multiinfarct dementia, due to degeneration in the small-diameter penetrating arterioles.

The statin-related reduction of LDL cholesterol patients with a clinical history of coronary heart disease has resulted in a highly significant decrease in the occurrence of fatal and nonfatal cerebrovascular events. In the 4S, CARE and LIPID studies the cerebrovascular event relative risk reduction from statins was 28%, 32% and 19% respectively in the treated and control groups. Similar results were seen in the VA-HIT study in coronary heart disease patients with low HDL-C values, treated with a fibrate. This produced an isolated effect on HDL-C (+6%) and on TC (−31%), without influencing the LDL-C: the relative risk reduction in stroke was 35%. In studies conducted on subjects in primary prevention the results are less clear. In the WOSCOP study, pravastatin caused a slight decrease in stroke risk (−6% ; $P = ns$), while in the AFCAPS/TEXCAPS study, conducted on subjects with normal plasma lipid profile except for low HDL-C, an analogous treatment seemed to be more effective (−22%, but the numbers were small). Preliminary results from the Heart Protection Study show that the 40 mg of simvastatin daily reduced the overall stroke incidence by 27% (Standard Error = 5.3; $p < 0.00001$) in high-risk patients and was even more effective in subjects older than 70 [4,5,7]. Some data suggest that the statins’ effect on the incidence of these occurrences could be at least partially independent from their antihypercholesterolaemic effect. For example, some statins seem to contribute in different degrees to blood pressure control, probably through the restoration of the endothelial function. Even if the blood pressure change associated with the use of these drugs is modest (5–6 mmHg, both as diastolic and systolic blood pressures), it is of such amplitude as to be capable of contributing in a significant way to stroke prevention [8].

Subjects with a personal history of cerebrovascular events have an increased coronary risk and vice versa. In the presence of an easily in vivo detectable anatomical alteration (the medio-intimal thickness increase in the external carotid) both the risk of cerebrovascular and coronary heart events is significantly increased. Statins therefore represent an important tool for the combined prevention of the two pathologies [9].

It is now evident that atherosclerosis diagnosis, complications, and therapy have to be considered in a context of integrated family medicine, at both individual and population levels from (1) evaluation of all the principal risk factors and (2) early adoption of preventive measures that guarantee evidence-based results on more objective clinical results (as in the case of the myocardial infarction and stroke prevention), as well as optimization of the costs of prevention [10,11].
Finally, different hypotheses link the origin of Alzheimer’s disease to that of progressive cerebrovascular dementia caused by cerebral microcirculation damage. A recent US study of a wide range of patients affected by Alzheimer’s disease has shown that 69% had cerebrovascular comorbidity. It is therefore difficult clearly to discriminate the two pathologies. Nevertheless, it is plausible that the application of a suitable early prevention of the cerebrovascular pathology could stabilize or prevent Alzheimer’s disease.

A need exists for health authorities and doctors to take part in studies to prevent death based on cerebrovascular pathology. Health is the only fundamental right defined by the Italian Constitution (Article 32). The latest document published by the WHO in 1998 is Health 21: 21 health objectives for the 21st century. Among them, the fifth, ‘to grow old in a healthy way’ also includes ‘to reduce the incidence and the prevalence of the diseases and the other causes of bad health and death to the lowest possible level’. Objective Eight is ‘to reduce non-transmissible diseases’, especially reducing the risk factors common to more illnesses (smoking, dietary errors, alcohol, sedentary lifestyles, stress, blood hypertension, diabetes).

Numerous studies have shown the effectiveness of preventive measures at the population level. In Italy, a wide multidisciplinary group comprising 20 scientific societies and two patients associations has produced guidelines for cerebral stroke prevention and therapy which have had widespread diffusion by professional operators (both general practitioners and physicians).

References


