

# Common Neurological Problems in the Elderly

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## Introduction

The global burden of illness has changed because of an epidemiological transition in recent years. The incidence rate of neurological problem is increasing and it has been emerged as a global health issue (Menke 2010).

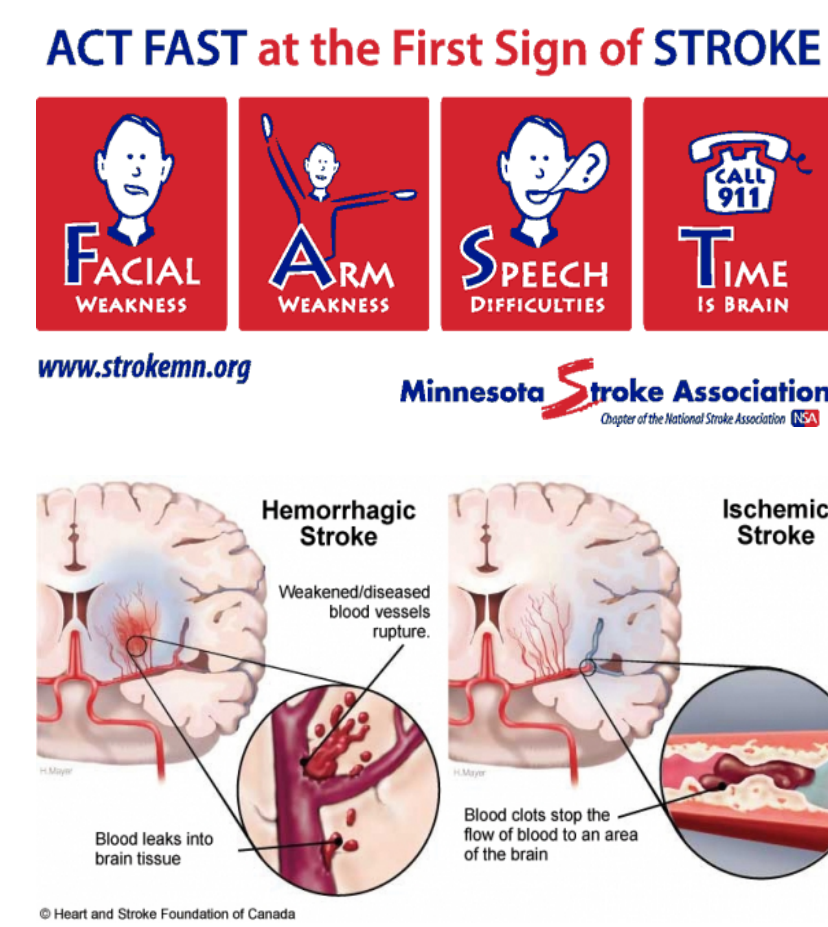
The Global Burden of Disease (GBD) study found that the burden of neurological disorders was seriously underestimated by traditional epidemiological and health statistical methods (WHO 2006). This poster will focus on common neurological issues, identify risk factors for pathology, the role of lifestyle adjustment and promote the community awareness.

## Common Neurological Problems

- Stroke (5<sup>th</sup> leading cause of death in the U.S.)
- Alzheimer's disease (6<sup>th</sup> leading cause of death in the U.S.)
- Dementia (a major cause of disability in later life)

## What is Stroke?

- A stroke happens when blood flow to a part of the brain stops.
- Stroke is a major cause of disability and it is related to the development of dementia (Zhu et al 1998).

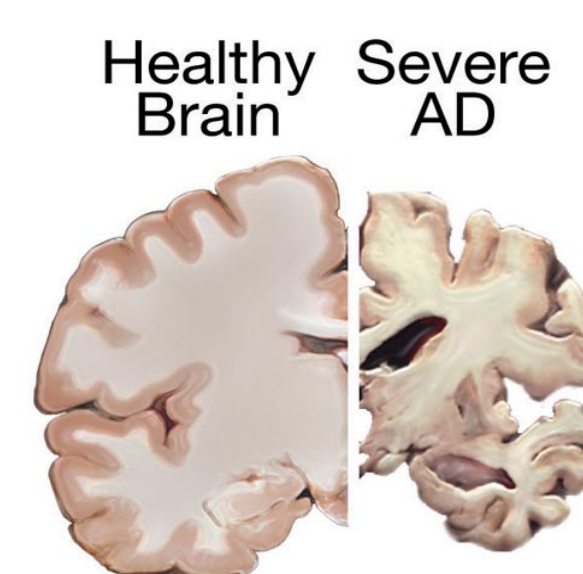


## What is Dementia?

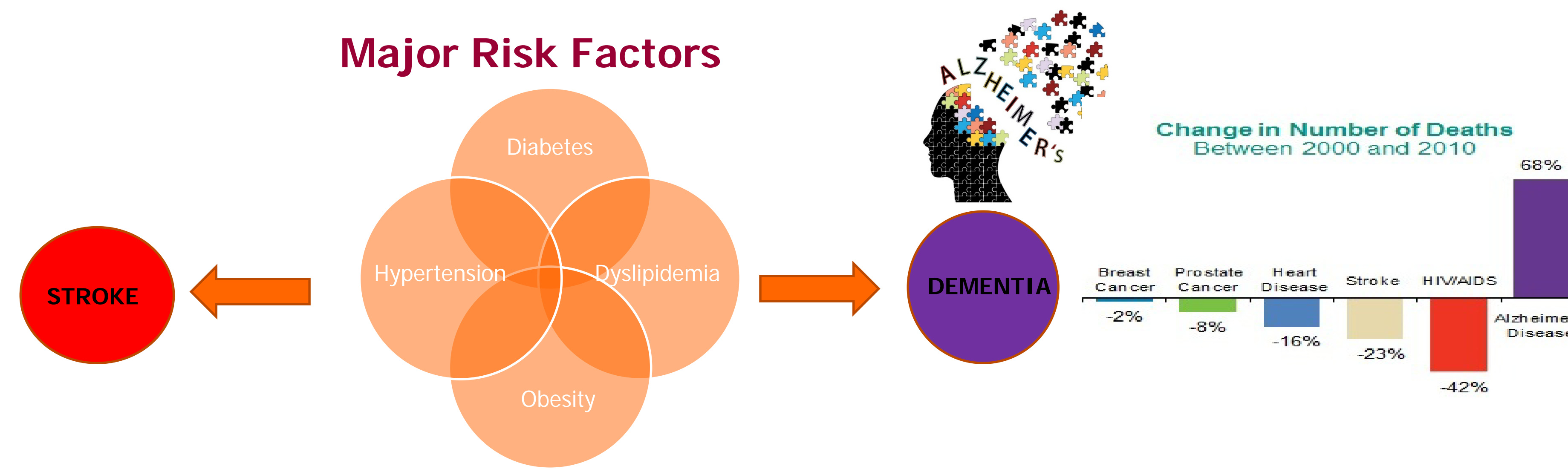
- Dementia is a syndrome caused by disease of the brain, usually of a chronic or progressive nature, in which there is disturbance of multiple higher cortical functions, including memory, thinking, orientation, comprehension, calculation, learning capacity, language and judgment.
- As there is no curative treatment for dementia. However, lifestyle changes may prevent or delay the onset of dementia (Lourida et al 2013).
- Strategies for the prevention of dementia include controlling the vascular risk factor, supporting cognitive activity, physical activity, and treatment of depression.

## What is Alzheimer's disease (AD)?

- AD is characterized by a loss of attention and memory associated with a build up of beta-amyloid plaques and tau protein tangles in the brain.
- The behavioral symptoms have heavy consequences for the patients and their families.
- Almost two-thirds of American seniors living with Alzheimer's are women (Alzheimer's association).



## Major Risk Factors



## Strategies for Prevention of Dementia and Stroke

- Control the vascular risk factors might reduce the risk of dementia and stroke
- Increase neuronal reserves and neuroprotection
- Promote lifestyle modification, social support and community awareness (Purandare, Ballard & Burns 2005)



## Controlling Vascular Risk Factors

- **Hypertension:** is an important risk factor for stroke. Both very high systolic blood pressure and very low diastolic blood pressure in late life has an increased association with risk of dementia and AD.
- **Hypercholesterolemia:** High level of cholesterol and low-density lipoproteins in late life are associated with an increased risk of developing cognitive impairment and dementia with stroke.
- **Diabetes:** Controlling blood sugar level is important for prevention of both dementia and AD. Older adults with diabetes have approximately double the risk of developing dementia and mild cognitive impairment. People with diabetes also have a high risk of developing AD.
- **Heart Disease:** Myocardial infarction and atrial fibrillation are known risk factors for both AD and vascular dementia.
- **Smoking:** an established cardiovascular risk factor, which is also a risk factor for AD and Dementia (Middleton & Yaffe 2009).

	OR	95% CI	PAR%
Dementia	3.6*	2.3-5.5	18.4
Cognitive Impairments	2.4	1.3-4.6	8.5

Association of Stroke With Dementia, Cognitive Impairment, and Functional Disability in the Very Old (Zhu et al 1998)

\*The risk of having dementia in stroke patients is 3.6 times higher than those without stroke.

PAR%: Population-attributable risk percentage.

## Increasing Neuronal Reserves

- Cognitive activity is associated with a reduced risk of developing cognitive decline and dementia.
- Mentally stimulating activities- such as learning, reading or playing games can improve memory reasoning, and mental processing in older adults.
- Depression is a risk factor for and a manifestation of cognitive decline. Depression is associated with an increased long-term risk of dementia (Taylor 2014).
- Engaging in social and leisure activity or a rich social network has a benefit in reducing the risk of dementia. There is a possible link between social stimulation and regenerative brain processes (Purandare, Ballard & Burns 2005).

## Lifestyle Modification, Nutrition and Social Support

- A mediterranean diet and having higher fruit and vegetable intake may lower the risk of developing dementia and AD. High consumption of fish is associated with a lower risk of cognitive decline (Lourida et al, 2013; Middleton & Yaffe 2009).
- High intake of antioxidants (Vitamins C and E) is associated with lower risk of dementia.
- The strategy of shifting dietary fat intake toward lower trans-fat and higher omega-3 fatty acid foods has potential in the prevention of AD (Bell 2005).
- Being overweight or obese at an older age is a risk factor for the development of late-onset dementia (Steen 2004).
- Exercise intervention may reduce the rate of cognitive decline and physically active people have a lower incidence of AD.

## Discussion

- Because of increasing longevity in the US, the prevalence of dementia and AD in the U.S is expected to triple by 2050.
- Stroke, AD and Dementia are the leading cause of disability in the elderly and have serious negative impact on the quality of life.
- Understanding risk factors and identifying people at risk is important to prevent neurological diseases.
- Early awareness of mild cognitive impairment, risk factor modification and interventions of cognitive and physical activity may improve cognitive performance and slow cognitive decline.

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