



Medicine for Managers

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Cognitive Decline

Cognitive decline is attracting increasing interest in the medical media, and recently there have been articles in newspapers and television suggesting that President Trump may be displaying the signs. It is defined as brain changes involving gradual loss of thinking skills including memory, together with ability to reason and maintain attention. A degree of decline is normal in the aging process but significant changes indicate cognitive decline.

The degree of cognitive decline and the speed with which it develops can be influenced by a range of factors including some illnesses, injury and some health factors including the nature of medication used in the treatment of particular diseases.

Specialists may use scales of cognitive decline to record and monitor changes over time.

One system, *The Global Deterioration Scale*, is used to describe deterioration in the dementias. It has seven stages.

Stage 1. No detectable brain changes clinically, although some anatomical changes may be present

Stage 2 Subjective Cognitive Decline. Minor memory lapses such as forgetting names, familiar words or the location of belongings. Often dismissed as 'normal aging'.

Stage 3 Mild Cognitive Decline. Missing appointments, misplacing things or struggling with tasks such as finance management.

Stage 4 Moderate Cognitive Decline (Early Dementia). Difficulty with daily living; shopping, cooking, managing medication. The person may be disorientated in time and space, may need assistance with some activities and may become socially isolated.

Stage 5 Moderately Severe Cognitive Decline (Moderate Dementia). Forgetting personal information, e.g. address, telephone number. Needing assistance for daily living and safety.

Stage 6 Severe Cognitive Decline (Moderate to Severe Dementia). Memory loss including family names and virtually all information. Needing help with dressing, feeding and bathing and becoming agitated and wandering.

Stage 7 Very Severe Cognitive Decline (Late Dementia). No communication. Total dependence. Often becomes bedridden.

It is common for the early stages of cognitive decline to advance slowly over several years, whilst the later stages progress more rapidly.

In the early stages, an individual may visit the GP, concerned about forgetfulness or struggling increasingly with routine tasks. As the disorder progresses, family may seek medical help because they notice their relative struggling with words, becoming more anxious or aggressive or failing to recognise friends and family.

Diagnosis of cognitive decline

The diagnosis may be apparent from the description of a person's behaviour during the history taking. However, there are a number of screening tests available, many of which take only a few minutes

Amongst the best known are **SAGE** (Self-Administered Gerocognitive Examination), and the **MMSE** (Mini-Mental State Examination) which are carried out by a healthcare professional. They are reasonably effective at predicting cognitive decline.

The doctor will want to do a physical clinical examination because there are a number of physical causes which result in the person experiencing deterioration in thought and memory.

Such causes may include:

- High Blood Pressure
- Depression

- Diabetes
- Ischaemic (blood vessel) disease and stroke
- Sleep deprivation

The patient may also have a neurological cause for the symptoms such as Alzheimer's Disease.

It is known that family genetic history may be significant in the risk of developing cognitive decline with progressive age and that genetic factors may influence deterioration in various ways. It is estimated that up to 60-70% of affected individuals may have a genetic cause for declining cognition.

Smoking, excessive alcohol consumption and a raised cholesterol have also been implicated.

Medication Effects

Drug-related cognitive decline is common and frequently used drugs such as benzodiazepines, antidepressants and antipsychotics have all been implicated.

Studies have recognised that up to about 30% of dementia cases may be reversible on change of medication. A further complication is the increasing use of multiple drugs (polypharmacy) which may increase the adverse effect on cognition.

Age of Onset

A 2020 analysis of Health and Retirement with 29,000 participants, found that women first developed any degree of cognitive impairment at about age 73 and those women who went on to develop any sort of dementia did so at about age 83.

For men it was at about age 70 with any signs of dementia at about age 79.

Avoiding Cognitive Decline

Some age related cognitive changes are genetically induced and that element of risk cannot be modified.

However there are other ways to keep the brain healthy and preserve the ability to think.

- A good diet with leafy vegetables. Studies suggest Mediterranean diets slow decline
- Keep physically active
- Maintain social activities
- Stimulate the brain with reading, hobbies, etc
- Avoid any sort of head injury
- Do not smoke
- Limit alcohol consumption

Cognitive Decline and Alzheimer's Disease

Alzheimer's Disease is one of several diseases which affect the brain and cause dementia. Dementia and Alzheimer's Disease are often spoken of as being the same thing.

However, Alzheimer's is only one of the causes of dementia as explained above.

Alzheimer's Disease is believed to be caused by abnormal build-up of proteins forming clumps (**plaques**) around brain cells. Several proteins may be involved. It is not known why it happens but it begins many years before symptoms appear.

Electrical messages between brain cells become compromised and the chemical transmitter, **Acetylcholine**, which connects nerve cells, becomes very low. Areas of brain shrink, particularly the area associated with memory. Commonly the first symptoms of Alzheimer's are disturbances in vision or language rather than memory. It is steadily progressive.

So, some of us will develop dementia as we get older.

However, many people will avoid it or slow down its development or progression by keeping active, using the brain, not smoking and limiting alcohol consumption.

There is considerable research into the subject of cognitive decline and I personally would not bet against there being an effective drug treatment within twenty years.

Let us hope so!

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