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URL of this page: //medlineplus.gov/ency/article/000683.htm

## Dementia due to metabolic causes

Dementia is loss of brain function that occurs with certain diseases. Dementia may also be referred to as major neurocognitive disorder.

Dementia due to metabolic causes is a loss of brain function that can occur with abnormal chemical processes in the body. With some of these disorders, if treated early, brain dysfunction can be reversed. Left untreated, permanent brain damage, such as dementia, can occur.

## Causes

Possible metabolic causes of dementia include:

- Hormonal disorders, such as Addison disease, Cushing disease
- Heavy metal exposure, such as to lead, arsenic, mercury, or manganese
- Repeat episodes of low blood sugar (hypoglycemia), most often seen in people with diabetes who use insulin
- High level of calcium in the blood, such as due to hyperparathyroidism
- Low level of thyroid hormone (hypothyroidism) or high level of thyroid hormone (thyrotoxicosis) in the body
- Liver cirrhosis
- Kidney failure
- Nutritional disorders, such as vitamin B1 deficiency, vitamin B12 deficiency, pellagra, or protein-calorie malnutrition
- Porphyria
- Poisons, such as methanol
- Severe alcohol use
- Wilson disease
- Disorders of the mitochondria (energy-producing parts of cells)
- Rapid changes in blood sodium level

## Symptoms

Metabolic disorders may cause confusion and changes in thinking or reasoning. These changes may be short-term or lasting. Dementia occurs when the symptoms are not reversible. Symptoms can be different for everyone. They depend on the health condition causing the dementia.

The early symptoms of dementia can include:

- Difficulty with tasks that take some thought but used to come easily, such as balancing a checkbook, playing games (such as bridge), and learning new information or routines
- Getting lost on familiar routes
- Language problems, such as trouble with names of familiar objects
- Losing interest in things previously enjoyed, flat mood
- Misplacing items
- Personality changes and loss of social skills, which can lead to inappropriate behaviors
- Mood changes that can cause periods of aggression and anxiety
- Poor performance at work resulting in demotion or loss of job

As the dementia gets worse, symptoms are more obvious and interfere with the ability to take care of yourself:

- Changing sleep patterns, often waking up at night
- Forgetting details about current events, forgetting events in one's life history
- Having difficulty doing basic tasks, such as preparing meals, choosing proper clothing, or driving
- Having hallucinations, (for example, seeing or hearing things that are not there), arguments, striking out, and behaving violently
- More difficulty reading or writing
- Poor judgment and losing the ability to recognize danger
- Using the wrong word, not pronouncing words correctly, speaking in confusing sentences
- Withdrawing from social contact

The person may also have symptoms from the disorder that caused dementia.

## Exams and Tests

Depending on the cause, a nervous system (neurologic) examination is done to identify the problems.

Tests to diagnose a medical condition causing the dementia may include:

- Ammonia level in the blood
- Blood chemistry, electrolytes
- Blood glucose level
- BUN, creatinine to check kidney function
- Liver function tests
- Lumbar puncture (spinal tap) to measure chemistry of the spinal fluid
- Nutritional assessment
- Thyroid function tests
- Urinalysis

- Vitamin B12 level

To check for certain brain disorders, an electroencephalogram (EEG), head CT scan, or head MRI scan is usually done.

## Treatment

The aim of treatment is to manage and correct the underlying disorder and control symptoms. With some metabolic disorders, treatment may stop or even reverse the dementia symptoms.

Medicines used to treat Alzheimer disease have not been shown to work for these types of disorders. Sometimes, these medicines are used anyway, when other treatments fail to control the underlying problems.

Plans should also be made for home care for people with dementia.

## Outlook (Prognosis)

Outcome varies, depending on the cause of the dementia and the amount of damage to the brain.

## Possible Complications

Complications may include the following:

- Loss of ability to function or care for self
- Loss of ability to interact
- Pneumonia, urinary tract infections, and skin infections
- Pressure sores
- Symptoms of the underlying problem (such as loss of sensation due to a nerve injury from vitamin B12 deficiency)

## When to Contact a Medical Professional

Contact your health care provider if symptoms get worse or continue. Go to the emergency room or call 911 or the local emergency number if there is a sudden change in mental status or a life-threatening emergency.

## Prevention

Treating the underlying cause may reduce the risk for metabolic dementia.

## Alternative Names

Chronic brain impairment - metabolic; Mild cognitive impairment - metabolic; MCI - metabolic; Neurocognitive disorder - metabolic

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## Review Date 3/31/2024

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06/01/2028

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