

## **CHAPTER 19** **COGNITIVE IMPAIRMENT**

**Authors |** Lauren Monds, Nicole Ridley, Warren Logge & Adrienne Withall

This chapter provides an overview of treatment options and approaches for patients with cognitive impairment.



# COGNITIVE IMPAIRMENT

## PEOPLE WITH COGNITIVE IMPAIRMENT

The prevalence of cognitive impairment (CI) in people seeking treatment for alcohol use disorder (AUD) is high (up to two thirds with some form of impairment). Impaired cognitive functioning is related to poorer treatment retention and increased risk of relapse. Early assessment and ongoing monitoring of cognitive status is therefore essential for appropriate treatment planning and to maximise likelihood of treatment success.

## SCREENING, ASSESSMENT AND TREATMENT PLANNING

A review of cognitive functioning should form part of assessment on treatment entry. This includes initial screening and management of acute causes of cognitive impairment (Wernicke's encephalopathy, alcohol withdrawal delirium; see [Chapter 22](#)). If chronic and/or significant CI is suspected after management of these acute conditions, then a more thorough assessment by an appropriately qualified professional is indicated. This stepped mode of assessment is best practice for an environment marked by high rates of CI, limited staff time (particularly staff with specialist training in cognitive assessment, such as neuropsychologists), and limited health service budgets.

Use of a standardised cognitive screening tool (such as the Montreal Cognitive Assessment; see [Box 19.1](#) for an overview of cognitive screening tools) should be integral to any patient screening. Considering the myriad potential causes of cognitive impairment in people with AUD, assessment of current cognitive status should include history-taking of other risk factors for cognitive impairment (e.g. head injury, mental health conditions) in addition to physical health status. Evaluation of developmental and educational history (e.g. learning or intellectual disabilities, limited education) should be included; cognitive impairment may be incorrectly diagnosed if premorbid level of ability (e.g. literacy) is not taken into account. Clinicians should be particularly vigilant for those at high risk of demonstrating cognitive impairment - older (aged 50+) patients with a history of long-term heavy alcohol use and/or those with central nervous system (CNS) pathology such as head injury or epilepsy.

The most widely used cognitive screening tool, the Mini-Mental State Examination (MMSE), while well validated for use in screening of early dementia, has limited sensitivity in detection of alcohol-related CI. The MMSE is copyright protected. The Montreal Cognitive Assessment (MoCA) is currently the most well-validated tool for use with individuals with AUD (See [Box 19.1](#)). Where possible, formal cognitive assessment should be deferred until the patient has achieved several weeks of abstinence to identify the highest level of performance. However, early cognitive screen and/or assessment is preferable to none at all and may be more robust with

respect to establishing likely ongoing day-to-day impairments. A more comprehensive assessment of cognitive functioning (e.g. neuropsychological assessment) is recommended where cognitive impairment persists following extended abstinence (e.g. one to two months), and particularly when there are concerns about the impact of the CI on functioning (e.g. ability to return to work). The results of the assessment can inform appropriate AUD treatment and other interventions as required (e.g. need for guardianship, aged care or disability service involvement). Following full neuropsychological assessment, the clinician should discuss the results with the patient and their supporting networks and provide written material for patients in an easily understood format. It is important to include treating clinicians and support networks in this discussion as the patient themselves may lack the ability to retain knowledge of, or enact, recommendations.

Cognitive impairment can affect motivation, attention span, the capacity to critically evaluate situations and the ability to acquire new skills, but they can (indeed often do) improve after a period of abstinence from alcohol. Therefore, clinicians should take into account the possibility of improvement in cognitive functioning by allowing a sufficient period of abstinence from alcohol to elapse before finalising treatment planning. Establishing a routine may, however, mask cognitive impairment and if the routine is interrupted, the full extent of the impairment may manifest.

	RECOMMENDATION	GRADE OF RECOMMENDATION
19.1	All patients should be screened for cognitive impairment on treatment entry. If cognitive impairment is suspected, comprehensive assessment should be conducted that includes medical review (including nutritional deficiencies, physical and psychiatric comorbidities), review of other risk factors for cognitive impairment (e.g. past head injury), and cognitive screening with a standardised tool (e.g. Montreal Cognitive Assessment). Neuropsychological assessment may be beneficial if cognitive impairment persists post an initial stabilisation period.	A
19.2	Periodic re-evaluation of cognition (e.g. annually) in continuing patients is advised as impairment levels can fluctuate. Patients should be screened earlier if there are any inconsistencies in presentation or when people are not meeting their treatment goals/requirements. Using the same measure as at baseline is advised to be able to detect any changes in results.	B

RECOMMENDATION		GRADE OF RECOMMENDATION
19.3	The possibility of improvement in cognitive functioning should be considered by allowing a sufficient period of abstinence (or substantial reduction of alcohol intake) to elapse before finalising treatment planning; the treatment plan should also address nutritional improvements and treatable co-existing medical conditions. Treatment planning should be undertaken in collaboration with the patient, as well as relevant supports (i.e., family and friends), and relevant health professionals (i.e., GPs, addiction medicine specialists).	A

**BOX 19.1:** Cognitive screening tools

**COGNITIVE SCREENING TOOL**  
**THE MONTREAL COGNITIVE ASSESSMENT (MOCA)**

**TIME TO ADMINISTER**  
**15 - 20 MINS**

**ADVANTAGES**

- Good reported sensitivity and specificity for CI in AUD populations
- Assesses visuospatial/executive function, naming, attention, memory, language, abstraction, orientation
- Alternate forms to limit practice effects with repeat administration
- Paper or app formats
- Multiple language versions
- Freely available for non-commercial use
- Can be administered by any healthcare professional who has appropriate training, with interpretation limited to a health professional with expertise in the cognitive field
- Normative data sets available, including for adults aged 18 years and older

**DISADVANTAGES**

- From September 2020, official training and certification in administration and scoring of the MoCA will be mandatory to access the test (exempt for students, residents, fellows and neuropsychologists). This currently costs \$125 USD per person (discounts for groups offered)
- May not detect mild CI or CI in highly-educated individuals

#### COGNITIVE SCREENING TOOL

### THE ADDENBROOKE'S COGNITIVE EXAMINATION-III (ACE-III)

TIME TO ADMINISTER  
20 - 30 MINS

#### ADVANTAGES

- The previous version (ACE-R), which has similar psychometric properties, has acceptable sensitivity/specificity in substance use disorder
- Assesses attention, memory, fluency, language and visuospatial function
- More detailed assessment of language and praxis functions than the MoCA; may be more suitable for clinical settings where comorbid substance use and neurodegenerative disorders are suspected
- Alternate forms available to limit practice effects
- Paper or app formats
- Multiple language versions
- Freely available for clinical practice and research
- No mandatory qualification or training requirements

#### DISADVANTAGES

- Requires further validation in AUD treatment groups
- Longer administration time than the MoCA
- Normative data lacking for younger (age <50) populations

#### COGNITIVE SCREENING TOOL

### THE REPEATABLE BATTERY FOR THE ASSESSMENT OF NEUROPSYCHOLOGICAL STATUS (R-BANS)

TIME TO ADMINISTER  
20 - 30 MINS

#### ADVANTAGES

- Is able to detect CI in individuals with AUD
- Assesses immediate and delayed memory, visuospatial/constructional ability, language, attention
- More detailed assessment of learning and memory skills than MoCA/ACE-III
- Alternate forms available to facilitate repeated administration
- Comprehensive normative data set

#### DISADVANTAGES

- Longer administration time than the MoCA or ACE-III
- Does not assess executive function – this needs additional testing
- Requires specific user qualifications (allied health or psychologist)
- Costs \$594 AUD for basic test kit

## TREATMENT OPTIONS

Where severe cognitive impairment is present:

- Abstinence (or substantial reduction in alcohol intake) should be encouraged.
- Nutritional support should be considered including extended use of thiamine supplementation.
- Treatment should be provided in a structured and routine manner that limits need for complex decision-making skills (e.g. consider need for inpatient treatment).
- Treatment elements that require significant cognitive processing should be reconsidered as they may be ineffective.
- Information presented to patients should be adapted according to the type of impairment they have (e.g., concrete and provided in more than one modality, that is, written and spoken).
- Patients should be given opportunities to practice behaviours taught, in various settings, with and without prompting.
- Treatment interventions may focus more on linking the individual with enhanced external supports (e.g. community activities, National Disability Insurance Scheme) or assisting with protective interventions (e.g. guardianship) rather than on strengthening the individual's personal motivation to change.

Although clinicians have for some time recognised that many people with AUD also have CI, little evidence has been produced about which treatments are most effective. Nevertheless, level of cognitive functioning should be used to guide treatment planning. Even subtle cognitive deficits could affect treatment effectiveness in a number of ways.

People with AUD may have little insight into the nature and extent of their cognitive deficits. Due to concrete and rigid thought processes that can occur secondary to AUD-induced cognitive impairment, patients with CI may have difficulty processing all of the relevant information about their problem, and may be inflexible about changing their behaviour. They also may be impulsive and have difficulty generating new ways of solving problems when they arise. Clinicians must be aware therefore that this inflexibility results from an inability to understand the need to change, or from difficulties shifting existing ways of behaviour, rather than denial of a problem or refusal to change behaviour. In these situations, particularly where cognitive deficits are temporary, clinicians should try different treatment approaches (see below) to engage the person in treatment.

## ENGAGING THE PATIENT WITH COGNITIVE IMPAIRMENT IN TREATMENT

While many of the strategies discussed in this section apply to all patients, they may be particularly important for engaging patients with CI. The following strategies may increase the patient's engagement in treatment:

- **Provide written information to the patient about treatment and talk them through the process** – the patient may be more likely to enter treatment if they understand what treatment will involve, the process of treatment, and what they will be required to do.
- **Keep in mind that the discussion of different treatment options with the patient may need to be presented in a way that accounts for their type of CI** (e.g., assisting the patient to write down options if learning is impaired). Where the clinician judges that the patient is capable of making a decision, the patient should be involved in deciding which treatment to participate in.
- **Establish a positive relationship with the patient with CI by:**
  - keeping information as simple and structured as needed
  - adopting an empathetic, non-judgmental, non-authoritarian approach
  - listening carefully to what the patient has to say
  - scheduling sufficient time for consultations
- **Maintain contact with patients with cognitive deficits.** To increase the likelihood that patients will attend appointments, clinicians should:
  - telephone and/or send a text message before a consultation to remind the patient they have an appointment
  - schedule the appointment at the same time on the same day to decrease the likelihood of forgetting
  - encourage support networks to accompany the patient if appropriate
  - follow-up by telephone if an appointment has been forgotten and arrange an alternative time
  - arrange for referral to aftercare before completing treatment to ensure there is no gap in continuing care. It is often this gap that leads to relapse.

Cognitive deficits can also affect treatment by limiting the patient's ability to effectively express their thoughts and feelings and to understand communication from the clinician. The clinician should keep all communication as simple as possible, and repeat information several times if necessary. They should use multi-modal presentation of material where possible (e.g. verbally, visually, experientially/'doing'). The clinician can regularly check that the patient understands what they are saying by asking them to summarise in their own words, rather than merely asking them if they understand. Patients with memory problems should be encouraged to record their thoughts and questions in a diary and be directed to refer to their notes as a way to ensure the memory problem does not affect potential treatment outcomes. Treatment planning should also be undertaken in collaboration with the patient, as well as relevant supports (i.e., family and friends), and relevant health professionals (e.g. GP, addiction medicine specialist).

## MANAGING A PATIENT WITH ALCOHOL-RELATED COGNITIVE IMPAIRMENT

If cognitive impairment is present, determine if it is acute (delirium) or chronic or acute on chronic (that is, acute exacerbation of a chronic condition).

### **Where the patient appears to be in an acute confused state:**

- Hospitalise where appropriate.
- Consider Wernicke's encephalopathy. Treat urgently with parenteral thiamine (see [Chapter 22](#)).
- Rule out and treat other causes of confusion, such as sepsis, dehydration, metabolic disturbances, subdural haematoma, post-ictal confusion, substance intoxication, ischaemia/infarction, hepatic encephalopathy. Carry out appropriate investigations: urinalysis, blood alcohol concentration, blood tests, x-rays, EEG, CT or MRI.
- Orientate the patient with familiar staff and relatives, use of calendars and clocks, bright lights at night.
- Use benzodiazepines with or without antipsychotic medication for acute behavioural disturbance; however, keep in mind that these medications also may have acute cognitive impairment effects that could obscure results of any cognitive screening.

### **Where cognitive impairment is non-acute or slow to resolve, consider the presence of alcohol-related cognitive-impairment/ brain damage, Wernicke-Korsakoff's syndrome:**

- Carry out more detailed bedside tests of cognitive function e.g. MoCA (see Box 19.1).
- If available, refer for neurocognitive assessment with clinical psychologist/neuropsychologist. The timing of assessment will depend on the reason for referral (e.g. inpatient referrals may request assessment to assist evaluate decision-making capacity early on in treatment). If abstinence is likely to be maintained, comprehensive testing post an initial acute period is preferable (1-2 months), however this needs to be balanced against the risk of potential relapse.
- Investigate and treat where possible other potential causes of cognitive impairment, such as Alzheimer's disease or other forms of dementia, vitamin B12 deficiency, cholinergic medications, neoplasm, ischaemia/infarction, traumatic brain injury, epilepsy, or other CNS disorder.
- Rule out psychiatric comorbidity, which may present with cognitive changes; for example, major depressive disorder, severe anxiety, psychosis.
- Emphasise the importance of abstinence for brain recovery to the patient and their support networks. Implement environmental interventions to optimise brain recovery and minimise risk of relapse (e.g. alcohol-free, low-stress, structured environment with emphasis on nutrition).
- Consider engagement in structured daily activities (e.g. community groups, volunteer work) as a way of promoting routine and structure. Consider social groups (drop-in coffee groups) that are not excessively cognitively demanding but facilitate social engagement. Alcoholics Anonymous or similar treatment groups which have an emphasis on structure and routine may also be appropriate for some people with CI.
- Conduct a risk assessment of the patient's safety to live independently in the community. Include a social worker and occupational therapist as part of this assessment process.
- Consider placement options. Meet with the family to discuss the patient's limitations and requirements for activities of daily living. Review supported accommodation options where appropriate. Consider the need for guardianship if the patient is significantly impaired, unsafe to live independently but has limited insight about requirements for care.



- Limiting access to resources (e.g. financial management, limiting access to places where alcohol may be obtained) may be an appropriate intervention if the patient does not have capacity to make informed decisions about his/her substance use or finances.
- Consider the need for involuntary treatment if the patient continues to drink and does not engage in appropriate treatment.
- Consider selected rehabilitation options if cognitive impairment is minimal and there is some capacity to learn new material and skills. Use strategies described above to engage patient in treatment and maintain contact.
- Where possible, focus on teaching appropriate behavioural management and relapse prevention in a repetitive, relatively concrete manner (see Box 19.2 for more suggestions).
- Consider the possibility of improvement in cognitive function after a significant period of abstinence and adjust treatment plan accordingly.

	RECOMMENDATION	GRADE OF RECOMMENDATION
19.4	Where cognitive impairment is confirmed, treatment should be tailored to meet the cognitive abilities of the patient (e.g. simplify instructions, appointment reminders).	A
19.5	Where cognitive impairment is identified, referral for cognitive remediation techniques may improve the patient's cognitive functioning and clinical outcomes (e.g. managing alcohol use) and may assist in engagement of other treatments.	GPP
19.6	Where cognitive impairment is more severe, utilisation of external supports (e.g. family members), referral to formal support services (e.g. National Disability Insurance Scheme) or legal interventions (e.g. guardianship) may assist to engage the individual in treatment and manage their alcohol use.	B

## COGNITIVE REMEDIATION/REHABILITATION

Cognitive rehabilitation/cognitive training methods have been proposed as an intervention to restore and/or increase cognitive functioning in individuals with alcohol use disorder and potentially address impacts on treatment. There is some evidence of improved cognitive functioning in specific domains (e.g. executive functions, working memory) after use of cognitive remediation methods in individuals with substance use disorders. Moreover, combination of treatments, such as cognitive bias modification and goal management training have also been shown to increase cognitive outcomes, although there is insufficient evidence to date to recommend any one strategy. Additionally, while there is some consistency in the effectiveness of the approaches for the skill being trained, the extent of improvement in clinical outcomes, such as reduced relapse rates, is unclear. Cognitive recovery after abstinence also plays a large role in

the improvements seen in these studies. More systematic evidence by way of larger RCT studies using AUD individuals only is required, along with clearer evidence of improvement in long-term drinking outcomes and transfer of cognitive skills to broader recovery, in order to better elucidate the lasting effects of these techniques.

**BOX 19.2:** Possible treatment adaptations for individuals with cognitive impairment

**COGNITIVE WEAKNESS  
ATTENTION**

**POTENTIAL EVERYDAY IMPACT**

- Short concentration span
- Easily distracted
- Problems following conversations/long instructions
- Tires easily

**POTENTIAL STRATEGIES**

- Limit environmental distractions (e.g. take to private, quiet room)
- Simplify and shorten discussions – focus on one or two main points
- Break tasks down into steps (e.g. use list and work through sub-steps)
- Monitor fatigue, take frequent breaks
- Shorten length of sessions

**COGNITIVE WEAKNESS  
SPEED OF INFORMATION PROCESSING**

**POTENTIAL EVERYDAY IMPACT**

- May take longer to respond to questions or perform tasks
- Difficulty taking in lengthy, rapid or complex information
- May react slowly in response to situations

## POTENTIAL STRATEGIES

- Slow delivery of information to a rate that matches the individual's speed
- Give plenty of time for patient to respond and complete tasks. Be patient
- Break information up into small components and address one thing at a time
- Expect the individual to require more time to benefit from interventions
- Coach patients in strategies which allow them more time for decision-making (e.g. taking time out)

## COGNITIVE WEAKNESS

### LEARNING AND MEMORY (MILD DEFICITS)

## POTENTIAL EVERYDAY IMPACT

- Difficulty learning and retaining new information
- Problems retaining what has been discussed previously
- Missed appointments

## POTENTIAL STRATEGIES

- Set an agenda at each meeting (e.g. dot points) and refer to this during session
- Present information in a number of ways – verbal, visual aids, doing with patient
- Repeat information and ask patient to put in own words to check understanding
- End session with a verbal and written summary
- Provide structure and routine (e.g. appointment same time on the same day)
- Encourage use of a diary/phone calendar/phone alarms
- Send reminders for upcoming appointments (e.g. via SMS or phone call the day before)
- Use name tags for staff

## COGNITIVE WEAKNESS

### LEARNING AND MEMORY (SEVERE DEFICITS)

## POTENTIAL EVERYDAY IMPACT

- Inconsistent accounts of behaviour (e.g. last drink)
- Difficulty providing important details, including personal history, medical history, patterns of substance use
- Confabulation

## POTENTIAL STRATEGIES

- Utilise external supports to facilitate engagement (e.g. transport to appointment)
- Consider heavily structured treatment options (e.g. AA groups, inpatient)
- Avoid treatments reliant on new learning of cognitive skills (e.g. CBT)
- Consider engagement with social activities that minimise memory (e.g. drop-in groups)
- Support planning with use of timetables, weekly planners, reminders for appointments
- With the individual's consent, seek to obtain information from an informant (e.g. family memory or caregiver) to corroborate and fill in key historical details

## COGNITIVE WEAKNESS

### EXECUTIVE DYSFUNCTION

## POTENTIAL EVERYDAY IMPACT

- Repetitive in words and actions
- Trouble multitasking
- Difficulty executing a complex task with multiple steps
- Concrete in thought
- Difficulty generating alternative solutions to problems
- Difficulty applying learnt information to other situations
- Difficulty thinking from the perspective of others
- Poor impulse and/or emotional control
- Reduced insight into behaviour

## POTENTIAL STRATEGIES

- Use concrete examples and role plays rather than abstract concepts
- Encourage pre-planning of steps involved in a task
- Brainstorm potential problems in advance
- Provide clear and consistent boundaries and consequences for behaviour
- Reinforce positive behaviour (e.g. verbal affirmation, rewards)
- Encourage behavioural strategies (e.g. breathing exercises)
- Coaching self-talk strategies can also help to manage behaviour (e.g. 'stop, think, do')
- May need assistance and support to understand and complete complex forms
- Consider role of Guardianship, Financial Management, Involuntary Treatment
- Reduce exposure to behavioural triggers (e.g. access to alcohol)
- Verify information where important with a reliable informant