

Did you know?

Vascular conditions such as stroke, heart failure, high blood pressure and irregular heart beats can all lead to some form of cognitive impairment.

10% of individuals who have a stroke already have some vascular cognitive impairment. About half of individuals will have some symptoms of VCI after a stroke and can be more frequent and more severe after multiple strokes.

People with atrial fibrillation are 1.4 times more likely to experience VCI.

Congenital heart disease may triple the risk of early onset VCI (under age 65) and increase the risk of late onset VCI by 30%.

The Post-Stroke Checklist can help you plan your discussions with your healthcare team.

Heart & Stroke's **Self Management Checklist** offers guidance to support individuals recovering from stroke and their families and caregivers.

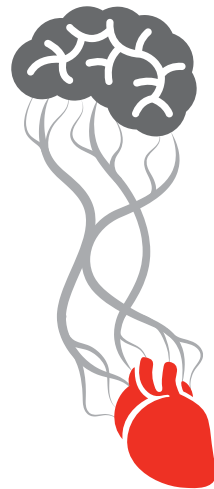
Your Stroke Journey can help you and your family understand stroke and the recovery process.

For more information on this topic and to check out similar resources on stroke, visit strokebestpractices.ca/resources/patient-resources

Visit heartandstroke.ca for more information.

What is Vascular Cognitive Impairment (VCI)?

Vascular cognitive impairment (VCI) is a condition where damage to the blood vessels of the brain leads to injury of brain tissue, resulting in changes in thinking and memory.



What are risk factors for VCI?

VCI may be caused by stroke, tiny clots that block small blood vessels in the brain, bleeding from small blood vessels in the brain, or blood vessel wall disease, resulting in a lack of oxygen and damage to brain cells. Other risk factors for VCI may include vascular conditions such as atrial fibrillation, heart failure, diabetes, high blood pressure; other medical conditions such as depression, obesity, hearing impairment; and modifiable risk factors such as smoking, excessive alcohol consumption and physical inactivity. There are also other important situational factors that may impact risk such as: lower education levels, low social contact and social isolation and air pollution.

What are the symptoms of VCI?

VCI can cause symptoms that range from mild forgetfulness to more serious challenges with attention, memory, language, processing speed, judgement, and problem solving. People with VCI may become easily distracted when completing a task, get lost in familiar surroundings, have difficulty learning new things or recalling information, have trouble sustaining focus, get up to move without locking the breaks on their walker. For more information, tips and strategies to support cognitive changes please visit

Your Stroke Journey.

The most serious form of VCI is called vascular dementia (VaD). Vascular dementia can cause difficulty with everyday activities like getting dressed and bathing. Vascular dementia and Alzheimer's disease can share some signs and symptoms, can exist separately or together, but they are not the same condition.

Note: The information on this resource can be helpful for individuals who are experiencing signs and symptoms of VCI, their family, and caregivers. This includes individuals who have experienced a stroke and now are experiencing VCI, individuals who experience VCI without overt stroke and also individuals who have VCI due to other significant medical conditions (e.g., heart failure, hypertension, atrial fibrillation, cardiac arrest, diabetes, renal failure or other vascular compromise).

This document can help you to be informed about VCI, its causes, symptoms, and ways of managing it, be involved in your own management of VCI, and take action and know what you can do.

Screening, Assessment and Diagnosis



- Screening for any changes in cognitive abilities following stroke or TIA compared to pre-stroke cognitive abilities is important.
 - Screening for VCI is also important for individuals with other significant risk factors for VCI and have cognitive, perceptual or functional changes.
 - Screening should happen at multiple time points and be ongoing. As changes to cognition are recognized, a detailed assessment should be performed by a qualified healthcare professional to inform a diagnosis and treatment plan.
 - The diagnosis of VCI generally involves assessing cognitive abilities through validated cognitive screening tests and assessments, neuroimaging, and determining the impact VCI has on everyday life.
- ✓ **Action:** Know the signs and symptoms of VCI. Speak to your healthcare team if you or your loved one have experienced a stroke, TIA or have significant risk factors for VCI; also if you notice changes in cognitive abilities, perception or function. Ask your healthcare team about your risk factors for VCI.

Management of VCI



The management of VCI may include:

- **Assessing and managing for medical risk factors** (e.g., stroke, heart failure, hypertension, diabetes, atrial fibrillation, sleep disorders), lifestyle risk factors (e.g., diet, sodium intake, exercise, weight, alcohol intake, smoking), and other vascular risk factors
- ✓ **Action:** talk to your healthcare team about your risk factors for VCI and to ensure optional management of the underlying conditions.
- **Pharmacological management:** There are some medications available that may help to manage VCI. This is an area being actively researched. In specific situations, some medications may be helpful, if so, your doctor may consider one of these to help manage VCI.
- ✓ **Action:** Speak to your healthcare team or pharmacist about your medications, what your options are, and if there is a medication that may be helpful for you. Also be aware that certain medication may increase the risk of cognitive changes or decline. Speak to your doctor about your medications.

• **Management of mood:** Depression, anxiety, apathy and emotional ups and downs may be experienced by individuals with VCI. Emotions can be intense, change quickly and can sometimes be difficult to control.

✓ **Action:** If you notice changes in mood in yourself or your loved one with VCI, speak to your healthcare team and ask to be connected with a mental health professional. There are treatment options that can help.

• **Behaviour management:** VCI may lead to behaviour changes that can be upsetting and disruptive. The healthcare team can suggest strategies and/or pharmacological interventions that can help, or investigate and treat other potential causes for new behavioural changes (e.g., pain).

✓ **Action:** If you notice changes in behaviour in yourself or your loved one with VCI that may cause distress or disruption, speak to your healthcare team. Track behaviour changes and make note of changes. Raise these changes and connect with your healthcare team to determine what you can do to address them.

• **Safety and risk management:** The presence of VCI may increase safety risks for daily activities. Your healthcare team can help provide education regarding safety risks and strategies to reduce these risks, and together develop an individualized safety plan.

✓ **Action:** Consider potential safety risks that may exist for yourself or your loved one with VCI and work with your healthcare team to take steps to reduce these risks.

• **Environmental supports:** The physical environment should be assessed for factors that may impact the ability of individuals to perform daily activities so that appropriate environmental supports can be considered. The use of assistive technologies, use of cues and individually tailored environmental adaptations can help.

✓ **Action:** There are many components of the environment that can be considered to support an individual with VCI. The physical environment, distractions and potential hazards (e.g., rugs, clutter) may need to be addressed. An individual may benefit from assistive technologies such as automatic lighting, electronic devices for communication support or cues such as signs, pictures, arrows. Work with your healthcare team to develop a plan that will support you and your family.



Cognitive Rehabilitation

Cognitive rehabilitation can be used to help improve or maintain cognitive functions such as problem solving, decision-making, planning, attention, memory, and cognitive-communication skills.

- ✓ **Action:** All individuals with a diagnosis of VCI should be assessed to determine their cognitive rehabilitation needs. Be actively engaged with your healthcare team in the development of your cognitive rehabilitation treatment planning to help ensure that the plan is individualized to you and your goals. Actively follow the cognitive rehabilitation plan and get the whole family involved.



Support for Individuals with VCI, their Families and Caregivers

Individuals with VCI, family and caregivers need support. Your healthcare team can provide education on knowledge of VCI. Individualized education plans may include information about VCI and its potential progression over time, practical skills, safety considerations, personal coping, problem-solving strategies to manage ongoing challenges, and caregiving skills.

- ✓ **Action:** Talk to your healthcare team about your support needs. Ask for training, information, and resources to support you and your loved ones. Talking to others who have also experienced VCI can be helpful. Look into local or virtual support groups.



Palliative and End-of-Life Care

For individuals with advanced vascular dementia, palliative care and/or end-of-life care may be important to discuss with your family and the healthcare team. Discussions should consider goals of care that include consideration of the person's capacity, individual care needs, values and wishes.

- ✓ **Action:** Keep your own advance care directives somewhere easily accessible and update as needed. Have conversations with loved ones about your values and preferences related to your health care.





































VCI Journey Map (Swartz et al. 2024)

A VCI Journey map was developed in collaboration with the VCI Community Consultation and Review Panel. The experiences of individuals with VCI and their caregivers across the continuum of care have not previously been well defined. To ensure these VCI best practice recommendations reflect and consider the lived experience of individuals with VCI and their families, a VCI Journey Map was created to capture their critical needs and challenges from symptom onset to pre-diagnosis, to diagnosis, to management and living with VCI. We encourage it to be displayed across healthcare settings to raise awareness and support individuals with VCI. (See next page)



Lived Experience Journey with Vascular Cognitive Impairment

(Swartz et al. 2025)

	Symptom onset	Pre-diagnosis	Diagnosis			Management		Living with VCI	
Symptoms	 Pre-existing, sudden experience, evolving, accumulative and/or increasing symptoms of vascular condition	 Identification (by self, family and/or caregiver) of cognitive changes	 Experiencing a significant event leading to seeking healthcare involvement	 Access to diagnostic testing	 Confirmation of diagnosis, explanation of cognitive changes and management	 Need for follow up, management plan, goals, next steps	 Ongoing adaptations to changing needs		
Navigating care		 Lack of awareness of when, where and how to access care	 Limited access to HCPs and services	 Need recognition from HCPs about cognitive changes/concerns	 Long process with multiple referrals and investigations	 Access to rehabilitation, community resources and living accommodations	 Lack of appropriate services and information (e.g. life stage, current abilities & goals, age)	 Education and information on "what to expect" for the person and their family	 Peer support for the person, family and/or caregiver
Managing daily activities	 Challenges with managing daily activities and roles	 Attributing changes to lifestyle factors (e.g., aging, hearing loss, stress)	 Limiting challenges by using compensation	 Developing and using strategies to manage daily activities	 Accommodations and guidance on returning to work, school and community participation	 Support for returning to leisure activities	 Financial considerations and support	 Maintaining or re-establishing person-hood and identity	
Emotions and mental health	 Uncertainty	 Grieving losses and changes			 Need for mental health support (e.g., depression)	 Developing and using coping strategies to support mental health (for the person, family and caregivers)	 Finding meaning, purpose and quality of life for the person, family and/or caregiver		
Relationship to self and others		 Changes to roles and relationships, assistance from family	 Diagnosis has impact on identity, consent and autonomy	 Family support and advocacy	 Begin to discuss wishes and plan for future	 Relationships with HCPs and client-centered care	 Establishing a supportive network to promote self-management and advocacy		

Each journey is unique to the person (person living with VCI, family or caregiver). This Journey Map has been created to support people living with VCI, families, caregivers and healthcare providers (HCP) in understanding elements of the experience of living with VCI. A person's journey may be impacted by many intersecting factors such as: life stage, current abilities, goals,

geographic location, sex, gender, sexual orientation, race, indigeneity, culture, age and other **social determinants of health**. While this journey map is an example of an experience of VCI, individuals may experience any of these elements at multiple times or throughout their personal journey. There also may be other important elements within a person's journey that are not included

on this map which should be respected, using a person centred approach. The journey map was developed in consultation with a Heart & Stroke Community Consultation and Review Panel, as well as extensive consultation with external stakeholders including but not limited to: people with lived experience of VCI, caregivers, researchers and healthcare providers.