

# Stroke and Depression

## – Supplemental Material

### What is Depression?

Depression is more than sadness, ‘the blues’, or grief. A person may be experiencing a clinical depression when feelings of unhappiness become severe, endure for more than a couple of weeks, and begin to interfere with areas of that person’s life – such as thinking, emotions, relationships, physical health, and work.

Clinical depression – or major depression – is a complex disorder and one of Canada’s most misunderstood illnesses. It is caused by the interplay of a variety of factors including family history, personality, stress, and brain chemistry.

Depression is one of Canada’s most common conditions. Approximately 8% of Canadian adults will experience depression at some point during their life. Currently, about 5% of male and about 12% of female youth (aged 12–19) suffer from depression. It affects between 5% and 10% of the senior population. Sadly, up to 90% of individuals with depression don’t seek help despite the fact that depression is effectively treated in about 80% of the population.

Depression is increasingly identified as both a predictor and an outcome of a physical illness. That is, people who have depression are more likely to develop a physical illness and those with chronic health conditions have a high risk of developing depression.

## Depression as a Stroke Risk Factor

It is well documented that those who have suffered a stroke are at greater risk of developing depression (post-stroke depression). A relatively new idea is depression putting people at risk of having stroke. Over the last 10–15 years, researchers have increasingly studied whether depression is a stroke risk factor.

The majority of the research shows a strong link between depression and stroke onset. This is independent of other risk factors such as lifestyle, hypertension and diabetes (Dong et al. 2011; Pan et al. 2011). Some authors have gone so far as to say that depression is as big a risk factor for stroke as hypertension (Hakim, 2011). More research is still needed to confirm whether depression actually causes a stroke.

The biological mechanisms linking depression and stroke risk are still emerging but there are several theories. According to Hakim (2011), the most relevant one involves the stimulation of the immune system. The presence of depression initiates an inflammatory response within the body; the risk of stroke is greater when the body is in a pro-inflammatory state. Inflammatory markers can lead to both neuronal and vascular injury, and inflammation is a major contributor to the development of atherosclerosis.

Another potential mechanism linking depression to stroke onset involves hemodynamics. Blood pressure tends to be sensitive and very responsive to the emotions a person experiences (Hakim, 2011). Depression tips the body towards stimulation of the sympathetic nervous system, which, through the fight-or-flight response, increases blood pressure. The brain appears very sensitive to increases in blood pressure, more so than the heart. Ongoing hemodynamic changes can lead to ischemic brain damage.

Other mechanisms are being explored but the two above are currently most supported by research.

## Depression Screening and Management

The Canadian Best Practice Recommendations in Stroke Care include guidelines on screening for depression due to the close link between it and stroke. Specifically, the Best Practice Recommendations state that all stroke patients be screened for depression at various “points along the continuum of care”, including:

- Acute care
- At discharge to home
- Throughout rehabilitation (inpatient, outpatient, community-based)
- Periodically following discharge into the community
- At follow-up appointments

Multiple screening points are recommended to ensure that the onset of a post-stroke depression isn't missed as it can occur any time after a stroke (but most commonly within the first 3-6 months). There is also emerging thought and practice to screen for depression within the Secondary Stroke Prevention clinics due to the increasing research associating depression to stroke risk.

Currently, depression screening is not routinely done and there is often little follow-up beyond the hospital.

Screening for depression should be done using a validated tool (from the list of recommended tools located at the end of this section) and incorporate an evaluation of the risk factors for depression, especially a family history of depression.



When a patient screens positive for depression this needs to be communicated to the *Physician* and *Social Worker* for full depression assessment and management:

- The *Physician* and *Pharmacist* on your team may be involved in determining the correct medication to treat post-stroke depression.

- The *Social Worker* can provide counseling and be a valuable source of information, resources, programs/services, support groups, and/or education sessions that should be part of your patient's recovery from depression. The patient and their family can be referred to social work as required. Consult with the *Social Worker* any time their involvement would be of value.

Treatment and management will be individualized to the needs of each individual stroke survivor, but they typically include:

- Antidepressant medication: start low and go slow, especially in geriatric population.
- Psychological therapies to assist the patient and family adjust to the loss of function and compromised self-image and self-esteem.

There are several ways that you can help:

- Observe and listen
- Watch for and note potential signs of post-stroke depression
- Encourage compliance with medication, especially advising how long medication can take to work
- Refer the stroke survivor to *Social Worker* or advise the *Physician* if you suspect a post-stroke depression
- Always educate patients and caregivers on post-stroke depression and available services, with the support of the *Social Worker* or physician

Remember, the timely identification and treatment of a depression is a critical component of stroke care due to the negative medical and rehabilitative outcomes associated with unmanaged depression.

## Validated screening tools for depression as suggested by the Canadian Best Practice Recommendations:

### Front Line Tools:

- Geriatric Depression Scale (GDS)
- Hamilton Anxiety and Depression Scale (HADS)
- Patient Health Questionnaire 9 (PHQ-9)

### Additional Tools for Consideration:

- Beck Depression Inventory (BDI)
- Centre for Epidemiological Studies Depression Scale (CES –D)

### Tools to consider for Aphasic patients:

- Stroke Aphasic Depression Questionnaire-10 (SADQ-10)
- Aphasia Depression Rating Scale (ADRS)