

Key Points

1. There is a strong, important link between depression and physical symptoms
2. High percent of depressed patients only report physical symptoms (such as pain, fatigue) to their doctor
3. The more physical symptoms there are, the more likely a mood disorder is present
4. Chronic pain is associated with increased duration of depression
5. Pain and depression share the same neurochemical pathways in the brain
6. Dual-action anti-depressants are most effective in helping both depression and physical symptoms
7. If treatment is stopped before physical symptoms improve, higher chance of depression coming back
8. Important for primary care providers to measure and treat both emotional and physical symptoms

Definitions

Chiari malformation I - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

neurotransmitter - specialized chemicals which transmit signals from one nerve cell to another

norepinephrine - a neurotransmitter involved in alertness, concentration, and motivation

reuptake - process by which neurotransmitters are removed after they've delivered their message

serotonin - neurotransmitter involved in many functions, including mood and appetite

Link Between Depression & Physical Symptoms Is Important

According to its website, the *The Primary Care Companion to The Journal of Clinical Psychiatry* is a "peer-reviewed journal that strives to bring together knowledge in medicine and psychiatry to improve patient care. In partnership with The Association of Medicine and Psychiatry, it will accomplish this goal by offering articles of high clinical value that address neuropsychiatric problems presenting in a variety of settings familiar to those in primary care."

In other words, *The Primary Care Companion* is intended to help Primary Care Physicians identify and treat neuropsychiatric problems. As such, not all the articles in the journal present new research, but rather discuss the current state of knowledge on particular topics and offer advice and guidance on diagnosis and treatment.

One such article of particular interest to Chiari patients was published in a 2004 supplement by Dr. Madhukar Trivedi at the Texas Southwest Medical School, focusing on the link between depression and physical symptoms. In the review, Dr. Trivedi presents research which shows that the link between depression and physical symptoms goes beyond simple cause and effect and stresses the importance in measuring, and treating, both the emotional and physical symptoms of patients, rather than focusing on just the emotional.

Why is this important for Chiari patients? While the psychological effects of Chiari have not been well researched, there is evidence suggesting that Chiari can have an impact both on cognitive functioning and mood. Published patient reports generally show a high level of depression and anxiety among Chiari patients, and there is growing evidence that the cerebellum (which is compressed in Chiari) plays a large role in many brain functions. Chiari patients often ask whether Chiari actually causes depression, whether depression is due to being in pain and disabled, or whether they are separate issues. As Dr. Trivedi's review demonstrates, the answer may not be so simple, and may be less relevant than realizing that treatments must consider both physical and emotional symptoms to succeed.

Research into depression reveals that physical symptoms are common with depression, and often include joint and limb pain, back pain, gastrointestinal problems, fatigue, and changes in appetite. In fact, physical symptoms can be so prevalent that they actually mask a depressed state. A study by the World Health Organization found that of 1,146 patient - in 14 countries - who met the clinical criteria for depression, nearly 70% reported to their doctor that physical symptoms were the reason they were seeking treatment. Thus it becomes difficult to determine whether a patient's aches and pains are from an underlying physical illness or in conjunction with a psychological problem.

An intriguing study by Kroenke (see Table 1) of 1,000 primary care patients found a strong connection between the number of physical symptoms reported and the presence of a mood disorder. Of patients who reported only 1 physical symptom, a mere 2% were found to have a mood disorder. In contrast, of patients who reported nine or more physical symptoms, 60% were found to be suffering from a mood disorder. The study found that with the addition of 2 symptoms, the chance of there being a mood disorder present nearly doubled.

Table 1
Physical Symptoms As A Predictor Of Mood Disorder

# Of Physical Symptoms	% With Mood Disorder
0-1	2%
2-3	12%
4-5	23%
6-8	44%
9+	60%

While it doesn't justify it, the link highlighted by the Kroenke study helps shed some light on one reason that Chiari is often misdiagnosed as psychological, and patients are told their physical symptoms are in their head. Chiari, which compromises the nervous system, results in numerous symptoms which a patient naturally reports to their physician. The physician, unless they are aware of Chiari and key in on a symptom which would suggest it, is looking at a variety of vague problems, such as pain in the legs, headaches, and fatigue. If no underlying physical illness is obvious to them, they may conclude the physical symptoms are present in conjunction with a mood disorder, and the underlying cause goes undiscovered.

Unfortunately, the web of entanglement is even more complicated than that. Research has shown that in general, the worse the physical symptoms are, the more severe the depression may be. Plus, physical

Source

Trivedi MH.
The link between depression and physical symptoms.
Prim Care Companion J Clin Psychiatry. 2004;6(Suppl 1):12-6.

symptoms - particularly chronic pain - have been found to increase the duration of depressed episodes. A study by Ohayon and Schatzberg found that among depressed patients, those suffering from chronic pain due to a physical condition on average reported depressed moods that were six months longer than those not in chronic pain.

The main reason that links between physical symptoms (pain) and depression are so difficult to unravel is that they share some of the same chemical pathways in the brain. Brain cells communicate by sending what are called neurotransmitters to each other. Neurotransmitters are specialized chemicals which are constantly being released and absorbed by brain cells and are critical in regulating mood, appetite, attention, and a host of other things we take for granted. Disruption of the natural release and absorption of these chemicals can cause a variety of problems.

It turns out that both pain and mood are regulated by two common neurotransmitters: serotonin and norepinephrine. A person's response to pain is controlled by these chemicals, and something that causes chronic pain - such as a syring - can result in an imbalance of these chemicals. Since they are also involved in controlling mood, mood disorders can result. Similarly, when a depressed person reports feeling pain, it may be a result of a prolonged depressed state resulting in an imbalance in the neurotransmitters responsible for regulating pain as well.

Since they share a chemical bond in the brain, it is not surprising that research has shown that residual physical symptoms can lead to relapses of depression. In today's standard of care, treatment often stops when a patient's acute emotional symptoms have subsided. However, studies have shown that a person with residual symptoms - including physical ones - is three times more likely to experience a relapse than someone with no residual symptoms. Because of this, Trivedi stresses the importance of ensuring that treatments continue until patients are essentially symptom free.

In providing guidance to the Primary Care Physician, Trivedi stresses several key areas of consideration:

1. Physical symptoms must be measured along with emotional ones in order for treatment to be effective (see Table 2). If pain is not included as a treatment goal, and is still present after treatment, relapse may occur.
2. Anti-depressant medications which work to regulate both serotonin and norepinephrine are more effective than ones which regulate just one.
3. Treatment needs to continue until all symptoms are resolved to minimize the chance of the problem reoccurring.

Table 2
Quick Inventory of Depressive Symptomatology

- Self-report or physician rated
- Self-report comprised of 16 questions, each with 4 possible answers
- Topics include: sleep, feeling sad, appetite, weight gain/loss, concentration and decision making, self-image, thoughts of death, general interest and energy level, restlessness

Other self report depression scales include:

- Beck Depression Inventory
- Zung Self-Rating Depression Scale
- Patient Health Questionnaire For Depression

This publication has stressed many times that Chiari is a complex disease, and perhaps some of the most complicated. Its neuro-psychological effects are complex. However, the theoretical underpinnings to suggest that Chiari can cause cognitive and emotional problems are present:

1. The cerebellum has been shown to play a role in higher-order thinking.
2. Damage to the cerebellum has been shown to lead to cognitive problems.
3. Sustained increased intracranial pressure has been shown to lead to cognitive problems.
4. There are reports of high-levels of depression and anxiety among Chiari patients.
5. There is a strong, chemically based link between pain and depression.

Now, what is desperately needed is research focused directly on the neuro-psychological impact of Chiari; for there seems little doubt that it plays a role in delaying accurate diagnoses, and has a major impact on the quality of life of patients.

Disclaimer: This publication is intended for informational purposes only and may or may not apply to you. The editor and publisher are not doctors and are not engaged in providing medical advice. Always consult a qualified professional for medical care. This publication does not endorse any doctors, procedures, or products.

© 2003-2020 C&S Patient Education Foundation