

Migraine disorders are a chronic neurological disease that impacts 4.9 million Australians and their families (Deloitte Access Economics, 2018). The prevalence of migraine disorders results in high demand on health care systems and in 2018 alone, cost the Australian government \$76 billion (Deloitte Access Economics, 2018). According to the 3<sup>rd</sup> edition International Classification of Headache Disorders (2013), to be diagnosed with migraine disorder one must experience five headache attacks lasting 4-72 hours. Each headache attack must consist of at least two of the following characteristics, unilateral position, pulsating quality, moderate/severe pain intensity or aggravation by routine physical activity, and either nausea/vomiting or photophobia/phonophobia. Some headache attacks follow from sensory or central nervous system disturbances known as aura. Migraine disorders can be categorised as episodic or chronic. Episodic migraine is characterised by 0-14 headache days per month, whereas chronic migraine requires 3 months with 15 or more headache days per month, with 8 of these days fulfilling migraine diagnostic criteria (Katsarava, Buse, Manack & Lipton, 2012). The prolonged nature and prevalence of migraine disorders makes it the 6<sup>th</sup> most disabling diseases globally (GBD 2016 Disease and Injury Incidence and Prevalence Collaborators, 2017) due to reduced productivity and increased susceptibility of mental health problems in chronic sufferers, specifically generalised anxiety disorder (GAD) and major depressive disorder (MDD) (Blumenfeld et al., 2011). Migraineurs diagnosed with psychiatric disorders are severely psychologically and socially devastated (Blumenfeld et al., 2011). This policy will examine the magnitude of this burden by acknowledging biological and social consequences of migraine disorders and the influence of GAD and MDD. The policy will discuss the current management and treatment options available to migraine sufferers, and then address potential long-term actions and recommendations to minimise the burden of disease associated with migraines.

### **Effects of Migraine**

Migraine disorders commonly co-occur with mental health disorders, specifically GAD and MDD, due to overlapping biological changes. Migraine disorders involve the trigeminal system, which is part of a neural pain pathway (Aggarwal, Puri & Puri, 2012). The trigeminal system involves central and peripheral processes that project pain receptors throughout the face, dura mater and the posterior area of the head and neck that transmit pain signals from the cranial vessels to the brain centres (Aggarwal et al., 2012). The activation of the trigeminal system releases calcitonin gene-related peptide (CGRP) and decreases serotonin, which dilates blood vessels and results in an inflammatory response that causes pain (Aggarwal et al., 2012). The activation and expression of CGRP results in photophobia and visual disturbances but is also necessary for anxiety responses (Sink, Walker, Yang & Davis, 2011). However, prolonged overexpression evident in chronic migraineurs is also a key factor of GAD symptoms, including excessive fear and worry (Sink et al., 2011). Furthermore, most trigeminal nerve cells are serotonergic and thus are involved in serotonin pathways from the brain stem (Han & Pae, 2015). Serotonin is a principle pain inhibitor that suppresses pain transmission and thus when in low quantities increase pain perception (Han & Pae, 2015). As low serotonin levels are a key biochemical indicator of depressed mood, a symptom of MDD, it is common that prolonged reduction of serotonin levels in chronic migraineurs results in psychiatric comorbidity (Han & Pae, 2015).

Migraineurs also suffer from a decline in social functioning that impacts themselves, their family and the community. Migraine pain creates a significant burden on quality of life, especially when the individual experiences comorbid psychiatric disorders such as GAD and MDD. Most migraineurs report they cannot go to work, complete household tasks or attend social events during a migraine attack due to pain that requires bed rest (Clarke, MacMillan, Sondhi & Wells, 1995). Their productivity is significantly reduced, which results in increased financial distress due to lack of income and medical expenses which puts pressure on their relationships and the community as the Australian government expends millions to compensate these losses (Deloitte Access Economics, 2018). Chronic migraineurs also experience heightened anxiety due to the anticipation of a migraine attack, which leads to reduced social engagement (Leondari, Raggi, Ajovalasit, Bussone & D'amico, 2010). Often, they adopt avoidance-related and maladaptive coping mechanisms that continue the cycle of social withdrawal, increased anxiety and depression (Stonnington, Kothari & Davis, 2016).

### **Management & Treatment**

The main acute treatments for migraineurs are nonsteroidal anti-inflammatory drugs (NSAIDs) and triptans. First-line intervention for migraine pain involves early treatment with NSAIDs. Bigal, Serrano, Reed & Lipton (2008) reported that chronic migraineurs used NSAIDs, mainly ibuprofen, 14.8 days per month to reduce pain and 43% of 520 participants were able to return to daily activities 2 hours after ingestion. While this is effective for some, chronic migraineurs often need a combination of NSAIDs and triptans to combat pain. Triptans are serotonin agonists and reduce the inflammatory response that causes pain in migraines (Ferrari, Goadsby & Lipton, 2002). Law, Derry & Moore (2016) reported naproxen (NSAID) and sumatriptan (triptan) taken simultaneously was highly effective in producing pain relief for 2 hours compared to being taken alone. They also reported that efficient pain relief was only achieved when medication was taken early, and the pain was mild. However, despite NSAIDs and triptans effectively reducing pain, chronic migraineurs are advised to only take medication during the most disabling attacks to avoid adverse effects of medication overuse (Taylor & Kaniecki, 2011).

As well as short term pharmacological treatments, due to high levels of psychiatric comorbidity, psychological interventions have been introduced to help treat migraineurs. Cognitive-behavioural therapy (CBT) teaches patients to modify maladaptive thoughts, emotions and behaviours (Orr et al., 2018). Often practitioners will educate the individual on the disorder and provide new efficient coping strategies to reduce anxiety and depression (Orr et al., 2018). Onur, Ertem, Uluduz & Karsidag (2017) reported that migraineurs diagnosed with GAD and/or MDD and treated with CBT showed a significant decrease in frequency of migraines, from a mean of 11 per month down to 5 per month. They concluded that CBT significantly reduces the severity of symptoms through progressive change in thought and behaviour patterns. Research suggests that in migraineurs with GAD and MDD benefit from CBT combined with antidepressants, specifically selective serotonin reuptake inhibitors (SSRIs). SSRIs help treat GAD and MDD and act as a preventative measure against migraine attacks by increasing serotonin and reducing inflammation (Powers et al., 2016). Powers et al., (2016) reported that CBT plus an antidepressant further reduced headache attack in adolescent chronic migraineurs by 11.5 days per month after 20 weeks.

A combination of pharmacological and psychological treatments and preventions are proven to be effective. Pain relief and adequate coping strategies allow individuals to regain and maintain employment and stabilise family relationships (Orr et al., 2018). However, these strategies are currently not reducing the economic impact of chronic migraines on individuals, their family or the community due to expenses and reduced availability of treatment to lower socioeconomic classes (Clarke et al., 1995).

Long-Term Actions & Recommendations

References