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YOGA FOR THE ADJUCTIVE MANAGEMENT OF CHRONIC LOW BACK PAIN: A CLINICAL REVIEW.

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Abstract

Introduction: Chronic low back pain is a major cause of activity limitation and work absence worldwide. Despite a wide range of conventional pharmacologic agents, non-pharmacologic interventions, and surgical procedures, most patients report only mild or moderate relief. It continues to exert an enormous social and economic burden on individuals, families, communities, industry and the governments. Yoga is not only efficacious, but easy to practice, safe and cost effective in ameliorating this chronic malady.

Methods: A systemic review of scientific publications cited by PubMed was done. There were 3857 citations under 'yoga' dating back to 1948 and 8992 citations under 'chronic low back pain' dating back to 1946. There were 92 entries under 'yoga and chronic low back pain', dating back to 1982. Other relevant published scientific material was also consulted.

Results: Several large and well-designed studies support yoga's effectiveness for reducing pain, increasing spinal flexibility and improving functionality in patients with chronic low back pain. Pain medication usage is reduced, fatigue is diminished and there is an amelioration of depression and anxiety. Yoga appears to be more effective than physical therapy, manipulative procedures and other complementary modalities like acupuncture, in this condition. Compliance is good and the benefits are long lasting.

Conclusion: Low back pain is associated with a substantial morbidity, disability and costs to the Indian society. Yoga is backed by evidence based data supporting its efficacy and safety as an adjunctive therapy in the management of chronic low back pain.

Introduction

Chronic low back pain is defined as low back pain of at least three month's duration. (Croft et al.,1998) It is among the most common of all health complaints. (Rives et al, 2004) Yearly prevalence ranges from 22% to 65% and lifetime prevalence from 11% to 84%. (Walker, 2000) It is a major cause of activity limitation and work absence worldwide. (Hoy et al, 2012) The Global Burden of Disease 2010 estimates that low back pain is amongst the top ten DALYs (disability-adjusted life years) causing diseases and injuries in the world.

(Murray et al, 2012) In the developed countries like the United States, yearly prevalence of back pain varies from 10% to 56% (Deyo et al, 1987) with a lifetime prevalence of 65% to 80% (Lawrence et al, 1998) It is considered the most expensive benign medical condition in the industrialized world. (Engel et al, 1996)

Its yearly prevalence in the developing countries is not much lower, varying between 36% and 64%. (Hoy et al., 2003; Cakmak et al, 2004; Gilgil et al, 2005; Barrero et al, 2006) South Asia is no exception. (Bindra et al, 2015) Its prevalence in the Indian population varies between 6.2% in the general population to 92% in construction workers. (Bindra et al, 2015) Etiological factors may like tuberculosis are unique to the Indian population. (Krishna et al, 2014) The patients with chronic low back pain in South Asia are usually from the lower socio-economic status, do not visit a consultant, and often prefer over-the-counter medications or traditional treatments. (Bindra et al, 2015) Chronic low back pain is also common in the poorer countries of Africa. (Omokhodion et al, 2003; Omokhodion 2004; Gilgil et al, 2005) In a systemic review, the average lifetime prevalence of low back pain in Africa, among the adolescents was 36% and among adults was 62%. (Louw et al. 2007)

Despite a wide range of conventional pharmacologic agents, non-pharmacologic interventions, and surgical procedures, most patients report only mild or moderate relief. (van Tulder et al, 2000; Balague et al, 2012; Haldeman et al, 2008; Bogduk, 2004; Wolsko et al, 2003) Prognosis remains poor. (Carey et al, 2000; Grotle et al, 2006) Chronic low back pain continues to exert an enormous social and economic burden on individuals, families, communities, industry and the state governments. (Woolf et al, 2003; Katz, 2006) Yoga provides a bio-psycho-social rehabilitation that is successful in the management of this condition. (Guzman et al, 2002) It is easy to learn and practice, relatively safe, and cheap. (Holtzman et al, 2013) This brief review focusses on the increasing scientific evidence confirming the beneficial effects of yoga as an adjunctive therapeutic modality in patients with chronic low back pain.

Methods

A comprehensive literature search was carried out using the PubMed database of the US National Library of Medicine, National Institutes of Health in February of 2017. Other contemporary and complementary medicine databases (including PMC, Medline, Google Scholar, and Quertile) were also queried and relevant publications were consulted. Other available and relevant published scientific material, identified through references, was also used. Only English language literature was reviewed.

Results

There were 3857 citations under ‘yoga’ dating back to 1948 and 8992 citations under ‘chronic low back pain’ dating back to 1946. There were 92 entries under ‘yoga and chronic low back pain’, dating back to 1982. There were 539 citations under ‘yoga and pain’ dating back to 1963; 102 under ‘yoga and muscle strength’ dating back to 1991; 121 under ‘yoga and flexibility’ dating back to 1964; 149 under ‘yoga and balance’ dating back to 1975; 494 citations under ‘yoga and depression’ dating back to 1974; 522 under ‘yoga and anxiety’ dating back to 1968; 80 under ‘yoga and sleep disorders’ dating back to 1963 and 606 under ’yoga and quality of life’ dating back to 1987.

Discussion

Several large and well-designed studies support yoga's effectiveness in patients with chronic low back pain. (Galantino et al, 2004, Jacobs et al, 2004, Williams et al, 2005, Sherman et al, 2005, Holtzman et al, 2013) The benefits of yoga stem from this biopsychosocial modality's (Gatchel et al, 2007) ability to beneficially ameliorate the litany of physical and emotional limitations encountered by these patients. There are measurable modulations of several neuroendocrine mediators, with beneficial results. (Sherman et al, 2013; Lee et al, 2014) Yoga appears to be more effective than physical therapy, manipulative procedures and other complementary modalities like acupuncture, in treating this condition. It is extremely cost-effective. Compliance is good, (Caren et al, 2015) and the benefits are long lasting.

Pain: Pain is the main disabling symptom, experienced by 80%-90% patients with chronic back discomfort. (Kovacs et al, 2005) The aim of therapeutic modalities is thus aimed primarily at reducing pain, preventing pain catastrophizing and increasing pain tolerance. Pain medications, both nonsteroidal anti-inflammatory drugs and opiates are commonly used as analgesics. (Moulin et al, 1996; van Tulder et al, 2000) However, relief is usually only temporary, and there is no associated psychological benefit. Anti-depressants (Salerno et al, 2002) and muscle relaxants also provide only limited relief. (van Tulder et al, 2003) Many other therapies, such as acupuncture and massage are only mildly more effective than sham therapy and invariably provide only temporary relief. They have limited success in long term improvements. (Cherkin et al, 2003; Mcllveen et al, 1998) Surgical interventions provide some relief but are invasive and often non-lasting. (Fritzell et al, 2001) Many other manipulative treatments have been tried without any persuasive efficacy. (Furlan et al, 2010) Exercise is a major non-pharmacological intervention, (O'Sullivan et al, 1997; Hayden et al, 2005) and is commonly utilized in the rehabilitation processes. However, results are less than impressive. Yoga has emerged as the forerunner in the treatment of pain associated with the low back. (Evans et al, 2010) It favorably affects all parameters of pain. (Carson et al, 2010; Curtis et al, 2011; John et al, 2007; Tilbrook et al, 2011) Since pain has a strong 'mind-connection' component, (Kabat-Zinn et al, 1986) yoga by "uncoupling" the physical sensation, from the emotional and cognitive experience of pain, contributes to the relief process. The pain reduction persists for several months during the post-treatment follow up period, (Jacobs et al, 2004; Sherman et al, 2005) and pain medication usage is considerably reduced.

Muscle strength and endurance, joint flexibility, posture and balance: Yoga uses the body's own weight and earth's gravity to put the various parts of the body through a range of motion. These postures gradually increase muscle strength and joint flexibility, (Carneiro et al, 2010; Field, 2011, Ryba et al, 2006; Roland et al, 2011; Caren et al, 2015) both in healthy individuals (Tran et al, 2001) as well as in patients with chronic low back pain. (Tekur et al, 2008) Muscular endurance is improved. (Chen et al, 2008) Yoga postures put the spine through a wide range of motions and help improve spinal alignment and bodily posture. (Gail et al, 2009) Balance is improved and falls are reduced, especially in the elderly. (Saravanakumar et al, 2014; Vaughan et al, 2014) These musculoskeletal improvements help ameliorate chronic low back pain.

Psychological factors: Associated psychological impairments are extremely common in patients with chronic low back pain. (Demyttenaere et al, 2007; Linton, 2000) The three common comorbidities are depression, anxiety and sleep disorders. (Patten, 2001; Newcomer et al, 2010; Bahouq et al, 2013) Depression incidence is doubled in patients with chronic low back pain, (Patten, 2001) and appears to have a bidirectional association: depression is a predictor of persistent pain and pain is a predictor of persistence of depression. (Saito et al, 2012; Ohayon et al, 2003)) There is strong evidence from several randomized trials supporting the benefits of yoga in reducing depression. (Groessl et al, 2008; Kinser et al, 2012) Depression in patients with low back pain prognosticate a more refractory and longer therapeutic course and more workplace time lost. (Bair et al, 2003) The economic burden is much higher on the society in these patients. (Gore et al, 2012) The beneficial role of yoga in alleviating anxiety is also well documented. (Hofman et al, 2015) Sleep disorders are also a common co-morbidity of chronic back pain, (Bahouq et al, 2013, Kathi et al, 2012) and yoga helps in improving sleep in these patients. (Balasubramaniam et al, 2012) Yoga increases functionality in patients with chronic back pain. (Telles et al, 2011; Holtzman et al, 2013) There are documented improvements in the quality of life in these patients. (Oken et al, 2006; Williams et al, 2009; Tekur et al, 2010; Banth et al, 2015) Patients with chronic low back pain also suffer from strained interpersonal relationships and financial difficulties. (Anderson, 1999; Balaque et al, 2012; Linton, 2000) There is also the positive effect provided by a sense of belonging when attending a yoga class – resulting in an increase in emotional and tangible support. (Wren et al, 2011) Yoga therefore not only helps ameliorate chronic low back pain but also helps rectify its associated psychological comorbidities.

Conclusion

Low back pain is associated with a substantial morbidity, disability and costs all over the world. In developed countries like the USA, causes include work related injuries, prolonged sitting, motor vehicle accidents and falls. In developing countries like India, labor jobs often involve improperly lifting of heavy loads. People of lower socioeconomic status also have poor access to consultants, end up taking over the counter pain medications and may prefer traditional treatments. Yoga is backed by evidence based data supporting its efficacy and safety as an adjunctive therapy in the management of chronic low back pain. Yoga is increasingly popular all over the world, easy to learn and perform and basically cheap or even free. It is therefore ideally suited as an adjunctive therapy for patients with chronic low back pain.

Conflict of interest: none

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