

Prevalence, Risk Factors and Management of Migraine among Elderly Population

Faisal Suliman Algaows^{1*}, Wed Ali Hafed², Abdussalam Ibrahim Alkhressi³, Sarah Abdullah Alshehri⁴, Maha Saleh Binfadhl⁵, Abubaker Mohammed Bamakhish⁶, Faris Saeed Al Sulayyim⁷, Yousef Ahmed Alnajjar⁸, Alaa Essam Nuqali⁹, Ali Ahmed Alshbeni¹⁰, Fatmah Hadi Asaad Alfaifi² and Nouf Sager Almutairi¹¹

¹Family Medicine Consultant, King Abdulaziz Medical City, National Guard, Iskan PHC, Saudi Arabia

²Jazan University, Saudi Arabia

³Bukairyah General Hospital, Saudi Arabia

⁴King Khalid University, Saudi Arabia

⁵King Saud Bin Abdulaziz University for Health Science, Saudi Arabia

⁶King Abdulaziz University, Rabigh, Saudi Arabia

⁷Ministry of Health, Department of Public Health-School Health, Aseer Region, Saudi Arabia

⁸Batterjee Medical College, Saudi Arabia

⁹Umm Al-Qura University, Saudi Arabia

¹⁰Imam Abdulrahman Bin Faisal University, Saudi Arabia

¹¹Qassim University, Buraydah, Saudi Arabia

***Corresponding Author:** Faisal Suliman Algaows, Family Medicine Consultant, King Abdulaziz Medical City, National Guard, Iskan PHC, Saudi Arabia.

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Abstract

Background: Migraine is a complex neurovascular syndrome resulting in an unstable trigeminal vascular system. Migraine is the second most prevalent headache symptom after headache type tension in older adults with a one-year incidence of approximately 10%. Numerous elderly migraine cases also would suffer from these age-related disorders and in particular, vascular conditions such as atherosclerosis, hypertension and diabetes, and their effects (heart attack and stroke) may affect the treatment of migraine in the elderly. The objective of this review is to discuss evidence related to the prevalence, burden, and clinical management of migraine in elderly population and compare findings of Saudi studies to other international studies.

Method: This is a systematic review was carried out, including PubMed, Google Scholar, and EBSCO. Topics concerning the epidemiology of migraine among elderlies and other articles were used in the making of the article. The founded articles were screened by titles and reviewing the abstracts.

Results and Conclusion: The review included 9 randomized studies. Prevalence of migraine in older patients is less than reported in younger adults with both incidence and prevalence decreasing with age. Migraine is a neglected problem, especially in elderly population. Further studies on its risk factors, management and associated co-morbidities need to be conducted for better recognition and attention.

Keywords: Migraine; Neurovascular Syndrome; Elderly Population

Introduction

Migraine is a complex neurovascular syndrome resulting in an unstable trigeminal vascular system [1]. Migraine is the second most prevalent headache symptom after headache type tension in older adults with a one-year incidence of approximately 10% [2]. Attacks can however, begin at any age. The majority of active migraine cases between 30 and 40 years of age have been reported in cross-sectional trials, but there are still many migraine patients in the 60s, 70s and 80s [3]. Significant risk factors associated with migraines include stress, anxiety, exposure to sunshine, sleeping disorders, unsanitary eating patterns, smoking, exhaustion, and low socio-economic levels [4].

Migraine is a common cause of disability and loss of work. Migraine can be classified in subtypes, according to the headache classification committee of the International Headache Society as migraine without aura, migraine with aura, chronic migraine, probable migraine, episodic syndromes that may be associated with migraine and complicated migraine [5]. The issue of the transition of migraine into a chronic regular form will arise at all ages, as well as in the elderly [6].

Numerous elderly migraine cases also would suffer from these age-related disorders and in particular, vascular conditions such as atherosclerosis, hypertension and diabetes, and their effects (heart attack and stroke) may affect the treatment of migraine in the elderly [7]. The genetic origin of migraine is complicated and it is unclear which loci and genes are involved in the pathogenesis; it can be focused on more than one genetic source at various genomic sites, working in combination with environmental influences to improve the vulnerability and features of the condition in certain individuals [8].

Diagnosis of migraine is built on patient history, physical checkup, and contentment of the diagnostic criteria. Neuroimaging if computed tomographic scan, magnetic resonance imaging, magnetic resonance angiography, or magnetic resonance venography is directed in case of acute severe headache, particularly if it is the first or worst episode, abnormal neurologic examination, especially if there are unexplained symptoms or signs, non-typical characteristics, variations in the patient's features, resistance to treatment, or immunosuppressed patients and systemic or meningeal signs or symptoms [9]. Cerebrospinal fluid analysis and electroencephalogram are not usually asked for unless seizure activity of infectious etiology need be excluded [10].

The treatment of a migraine case would entail the efforts of an inter-professional team. Inter-professional treatment given to the patient must use an integrated pathway to care paired with assessment approach to the preparation and assessment of all collaborative operations. Primary care doctors must be tested by an intern, a neurologist, or a headache expert if there is any uncertainty as to the diagnosis [11].

Objective of the Study

The objective of this review is to discuss evidence related to the prevalence, burden, and clinical management of migraine in elderly population and compare findings of Saudi studies to other international studies.

Materials and Methods

Sample and study groups

PubMed and EBSCO Information Services were chosen as the search databases for the publications used within the study, as they are high-quality sources. PubMed being one of the largest digital libraries on the internet developed by the National Center for Biotechnology Information (NCBI) which is a part of the United States National Library of Medicine. Topics concerning the epidemiology of migraine among elderly and other articles were used in the making of the article. The founded articles were screened by titles and reviewing the abstracts.

Inclusion criteria: The articles were selected based on the relevance to the project which should include one of the following topics; 'migraine in elderly, epidemiology of migraine in elderly, geriatric elderly'.

Exclusion criteria: All other articles which do not have one of these topics as their primary end, or repeated studies, and reviews studies were excluded.

Statistical analysis

No software will be utilized to analyze the data. The data was extracted based on specific form that contains (Title of the publication, author's name, objective, summary, results, and outcomes). Double revision of each member's outcomes was applied to ensure the validity and minimize the mistakes.

During articles selection, studies were doubled-reviewed, and their results to assure that we enroll the studies related to the objective of our study, and to avoid or minimize errors in the results.

Results

The search of the mentioned databases returned a total of 57 studies that were included for title screening. 41 of them were included for abstract screening, which lead to the exclusion of 19 articles. The remaining 22 publications full-texts were reviewed. The full-text revision lead to the exclusion of 14 studies, and 81 were enrolled for final data extraction (Table 1).

Author, Country, Publishing Year	Objective and Methodology	Results and Conclusion
Dubois N and Lafon B., <i>et al.</i> (2013). Loir-et-Cher [12]	A descriptive study during period November 2009 to June 2010, in 3 different nursing homes to assess prevalence of migraine in this age group, how is it recognized and treated in institutions, and its impact on everyday life. A questionnaire established on the basis of IHS criteria for migraine and on the HIT-6 was used to collect data, which is a validated test in evaluating the impact of migraine in everyday life.	The authors reported prevalence of migraine of 7.3%. Clinical findings reveal that risks can be modified, as aging decrease the problem. The effect on daily life is mild, but half of the comparison clinicians disregard the presence of this pain in their patients, who prefer to self-medicate.
Rajeh, S., <i>et al.</i> (2011). Thugbah, Saudi Arabia [13]	A community-based study to determine prevalence of migraine and tension headache in a 2-stage, door-to-door community survey	Age-specific rates rose from 2.4% in the first decade to 37.2% in the 7 th decade of age.
Monteith, Teshamae S., <i>et al.</i> (2015) Northern Manhattan [14]	A population-based cohort study to examine the association between migraine and stroke in a racially/ethnically diverse, older cohort using a self-report questionnaire based on criteria from the International Classification of Headache Disorders, second edition	The authors reported that (20%) had migraine and (6%) had migraine with aura. No association was found between migraine and risk of either stroke or combined cardiovascular events. There was association between migraine and current smoking.
Venturelli, E., <i>et al.</i> (2013) Italy [15]	A university-based outpatient headache clinic aimed to investigate every type of headaches in elderly people and was during period January 2011-December 2011.	The study found that; average age of headache elderly patients was 66.5 years. (7.9%) females and (3.6%) males in the older age group. There were no differences between the groups in gender and other variables assessed.
Martins, Kátia M <i>et al.</i> (2006) Brazil [16]	A university-based retrospective study undertaken to compare the clinical features of migraine attacks occurring in the elderly and in younger patients from 1995 to 2000.	The study found that; 25% of the elderlies and 29% of younger adults had migraine. 38% of migraine attacks in the elderly were unilateral, or with associated symptoms (nausea = 75% vs. 86%, P = .05; vomiting = 30% vs. 54%, P < .05, photophobia and phonophobia = 83% vs. 94%, P < .05).
Haan, J., <i>et al.</i> (2007) [17]	Review article to discuss the epidemiology and clinical aspects of migraine in the age group of > or =60 years with special attention to comorbidity and review treatment choices of migraine in elderly.	Migraine is less prevalent in older than in younger age groups. More elderly migraine patients may seek medical attention.
Zhang., <i>et al.</i> 2016 China [18]	A door-to-door survey on 5248 participants aged 60 years and older were visited from 2014 to 2015 to investigate the prevalence and characteristics of primary headaches among people aged 60 years and older	The prevalence was 10.30%. The migraine was 0.85%.
Feleppa., <i>et al.</i> 2017 Italy [19]	Cross-sectional study on patients presenting to a memory clinic over 8 years to assess the prevalence of specific headache disorders in a population older than 65 years seeking consultation due to memory problems or cognitive impairment. Migraine was defined via ICHD-2 criteria and disability assessed via MIDAS	(24.4%) patients suffered from headaches. Most common individual diagnoses were probable migraine (13.8%) and episodic migraine (3.0%). Chronic migraine or probable chronic migraine happened in 3.5%. Most patients with headaches routinely used symptomatic medications (55.6%).
Tai., <i>et al.</i> 2012 Malaysia [20]	A prospective cross-sectional study included patients presenting with headache to Neurology and Primary Care Clinics of University Malaya Medical Centre between February 2010 and July 2010 to evaluate the headache characteristics among elderly in an outpatient clinic setting.	More elderly patients 47.1% suffered from chronic daily headache as compared to younger 28.4% patients. Headache subtypes and frequency differ considerably among elderly patients.

Table 1: Author, country, year of publication, methodology and results.

Dubois N and Lafon B, *et al.* reported that; while migraine is frequent among institutionalized elderly people, this demographic hardly ever complains. Migraine can also be investigated, tested and treated whilst at the same time recognizing atypic appearance in this age group [12].

Rajeh S, *et al.* reported that; low headache prevalence in this community compared to findings in western countries could be ascribed to reflect the influence of traditional life styles and cultural factors in the Kingdom [13].

Monteith, Teshamae S, *et al.* concluded that migraine was associated with an increased risk of stroke among active smokers but not among nonsmokers [14].

Venturelli E, *et al.* reported that; chronic migraine and medication overuse don't decline over time. Compared with younger patients, severity of migraine did not decrease in older headache patients as reported in previous studies [15].

Martins Kátia M, *et al.* concluded that; migraine is less typical in the elderly and more frequently associated with vegetative symptoms. Diagnosis of migraine in elderly subjects may be more challenging, and many seniors with this primary headache can be misdiagnosed [16].

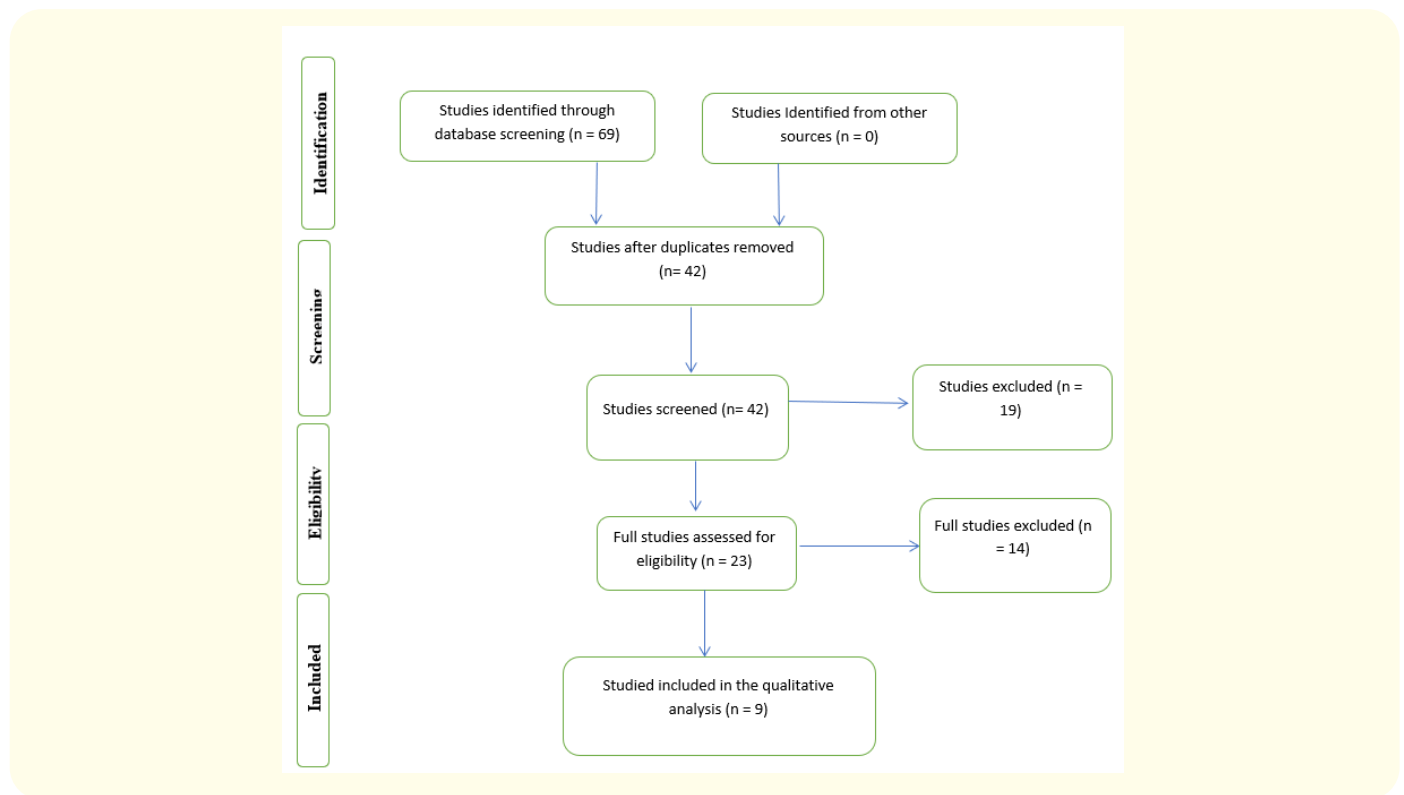
Haan J, *et al.* indicated that migraine has been overlooked in older age groups. Specific care is required for the diagnosis of migraine in elderly patients. Comorbidity plays an important part not only in the diagnosis but also in the choice of treatment. Efficient therapy is available and good monitoring will improve the quality of life, as acute and preventive drugs can be deliberately chosen [17].

Zhang, *et al.* reported that; women are more likely to have primary headache than men. Chronic headache was frequent among the elderly. Higher education levels were more predisposed than healthy participants to tension-type headaches. Heart disease participants were more likely than healthy participants to experience primary headache, tension-type headache, chronic headache, and unclassified headache [18].

Feleppa, *et al.* concluded that; overall headache disorders, chronic headaches and headaches needing medication are commonly found in older people seeking neurological disability and should be adequately diagnosed and treated [19].

Tai, *et al.* found that 47.1 per cent of elderly people in Malaysia have chronic daily headaches. 94.3 percent reported at least one episode of headache every month [20].

The included studies had different study designs



Discussion

Migraine is the second commonest headache disorder after tension type headache in older adults [21]. This simple systematic review was undertaken to discuss evidence related to the prevalence, burden, and clinical management of migraine in elderly population.

According to previous studies reporting migraine prevalence in elderly [22-25] 1 year prevalence rates ranged from 3.4% to 7.5% in men and from 11.9% to 25.0% in women. Three other studies [24-26] included elderly people over 65; prevalence in elderly people were slightly higher than others. Three studies on Chinese populations [27-29] reported 0.3%- 3% prevalence rates. Chinese study reported that; lower educational levels are unlikely to cause low prevalence rates [30]. In other studies: the peak prevalence in elderly adults was 1.2% and 4.1% among 60- to 69-year-olds from China mainland and Taiwan, respectively [31]. The incidence and prevalence of migraine decrease with age in many studies discussed in our results and others; a study reported that 2% of the migraineurs report onset of migraine after the age of 50 years [32].

Migraine episodes in older people are less typical. A smaller percentage is unilateral or concerned with photophobia, phonophobia, nausea or vomiting. This may have therapeutic implications. Being most usually bilateral and having less accompanying symptoms, migraine in the elderly may be misdiagnosed as a tension-type headache [33]. Migraine symptoms in the elderly did not vary in terms of the throbbing nature of pain, duration of attacks, premonitory characteristics, aura, causing and changing factors [33]. In comparison, the worsening of headaches with physical exercise declined with age. Neck tension also improves with acute episodes of migraine in elderly people. Some reports have indicated a rise in autonomic symptoms (tachycardia, sweating, dry mouth, facial flush) while there has been a decline in auditory sensitivities as well as nausea and vomiting as patients get older [34].

Passchier and Orlebeke reported that 44.5% of patients had one or less attacks a month in the previous year [35]. 53.2% of Clarke and Waters [36] and 83.7% of Andrasik, *et al.* [37]. Rasmussen, *et al.* [38] found that patients with one or more attacks a month was higher in MH 24% and lower in TTH 59%.

The risk of migraines is considerably increased by its interaction with other neurological, psychological, cerebrovascular and cardiovascular disorders. Migraine is significantly correlated with a myriad of illnesses. Kandil, *et al.* confirmed that the hypertension, anxiety, irritable bowel syndrome, and depression were the most common comorbidities with migraines [39]. A systematic analysis has found that migraine not only impacts people and their families, but also decreases their quality of life and social behaviors [40]. Several other studies [41-44] studied the most frequent headache causes among respondents, including stress, exhaustion, sleep disturbances, repeated exposure to intense sunlight or heat, and hunger.

Migraine patients, as opposed to healthy individuals, typically have other medical problems, including such chronic pain, gastrointestinal and cardiovascular disorders, and stroke [45]. Migraine is also linked with higher prevalence of mental illnesses. In fact, current findings have demonstrated that migraine patients are at a 2-to 5-fold greater risk of developing from depression or anxiety disorder than people without migraines [46,47]. Minen, *et al.* found that migraine patients feel that migraine diminishes their perceived credibility and value in the workplace as well as their parenting abilities [48].

Another significant negative influence of migraine on the day-to-day life of the patient is the likelihood of not trusting in migraine and its impacts on everyday life. Rutberg and Öhrling found that women with migraine complained that their pain was underestimated, and they were not believed when the migraine attack was viewed as an explanation by their families, friends, co-workers, or even health care providers [49].

Conclusion

Prevalence of migraine in older patients is less than reported in younger adults with both incidence and prevalence decreasing with age. Migraine is a neglected problem, especially in elderly population. Further studies on its risk factors, management and associated comorbidities need to be conducted for better recognition and attention.

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