Epidemiology of restless legs syndrome

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Historically, epidemiological studies of restless legs syndrome (RLS) have been limited by the subjective nature of the disease, the lack of standardized diagnostic criteria, and the sometimes indolent onset of the condition. Ekbom initially estimated a 5% prevalence of RLS in the general population [1]. Subsequent general population surveys by Strang [2] and Cirignotta [3] demonstrated prevalences of 2.5% (Australia) and 1.2% (Italy), respectively. However, one questionnaire survey of United States veterans reported a 29% prevalence of ‘restless or crawling sensations at night’ [4]. A large population-based survey involving 2,019 people in Canada reported that 15% of responders reported delayed sleep-onset due to ‘restlessness in [their] legs’, while 10% reported ‘unpleasant leg sensations’ associated with awakenings from sleep [5]. Although these two screening questions are likely very sensitive for RLS, their specificity is unknown.

Since the publication and widespread acceptance of the International Restless Legs Syndrome Study Group (IRLSSG) diagnostic criteria in 1995, epidemiological studies have greatly improved [6]. Rothdach et al. conducted a door-to-door personal interview of 369 people over the age of 65 in Augsburg, Germany [7]. Employing IRLSSG criteria, 13.9% of women and 6.1% of men reported RLS (9.8% total). Patients with RLS also reported a higher prevalence of depression and had lower self-reported mental health scores compared to normal controls.

Phillips et al. surveyed 1803 people older than 18 years of age in rural Kentucky by phone [8] and employed a single question (“Do you have unpleasant feelings in your legs – for example, creepy-crawling or tingling feelings – when you lie down at night that make you feel restless and keep you from getting a good night’s sleep?”) to determine the epidemiology of RLS as part of a general health survey. An answer of ‘often’ or ‘very often’ was given by 9.4% of respondents. An affirmative response correlated with other health issues including older age, obesity, poor subjective health, little exercise, diabetes, smoking, and alcohol abstinence.

Ulfberg et al. conducted two separate studies of RLS prevalence in Sweden [9]. A written questionnaire, including IRLSSG criteria for RLS, was sent to 4000 men aged 18–64 years. RLS was found in 5.8%, and was correlated with greater age. RLS patients also reported more headaches, depressed mood, and decreased libido. A similar questionnaire was sent to 200 women aged 18–64 years [10]. RLS was reported in 11.4% and was correlated with headache and daytime somnolence.

RLS patients tend to present to physicians in mid to later life, but many report subtle symptoms dating from their second or third decades [11,12]. Presentation in adolescence or even infancy is not rare [13]. It has been suggested that pediatric patients with RLS report different phenotypes that do not meet IRLSSG criteria, but rather resemble attention-deficit/hyperactivity disorder (ADHD) [14]. Therefore, true pediatric epidemiology is not known.

RLS can occur in all ethnic backgrounds; however, most feel that Caucasians are most affected. While most Caucasian surveys demonstrate an approximate 10% prevalence, two surveys in Asian populations report much lower prevalences. Tan et al., in a door-to-door survey of 1000 people over age 21 in Singapore, found only one person (0.1%) who met IRLSSG criteria for RLS [15]. Kageyama et al. distributed a written questionnaire asking “If you ever experience sleep disturbances due to creeping sensations or hot feeling in your legs” to 3600 women and 1012 men [16]. They reported that approximately 5% responded affirmatively to that single question. It is likely, however, that strict adherence to IRLSSG criteria would reduce that figure. There are no epidemiological reports of RLS in people of African descent. Anecdotally, African-Americans only rarely present with RLS, but it is unclear whether this

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represents a true lower prevalence, or rather differences in medical sophistication and referral patterns.

Clearly, RLS is a very common and still markedly under-diagnosed condition. Symptom onset may occur at a young age, but usually does not conform to IRLSSG criteria until the third or fourth decade. Women are more likely to be affected than men, and Caucasians are probably more affected than people of Asian or African descent.

There are several other medical conditions that are associated with RLS for which some epidemiological data exists: iron deficiency, neuropathy, renal failure, pregnancy, and Parkinson’s disease. In none of these conditions is the exact relationship with RLS understood; therefore, the data must be interpreted with caution.

An association between RLS and iron deficiency has long been recognized [1,17] and has recently been confirmed [18–20]. Only one study, however, has ever evaluated the prevalence of RLS in patients presenting with iron deficiency. Mathews reported that 43% of iron-deficient patients exhibited ‘leg restlessness’ [21].

Uremia secondary to renal failure is strongly associated with RLS symptoms. Several series report a 20–57% prevalence of RLS in renal dialysis patients [22–28]. The best study evaluating RLS in a population of dialysis patients found that 23% of 138 patients had definite IRLSSG criteria and an additional 9% had probable RLS. [29]

Many patients with RLS have both large-fiber and small-fiber neuropathy [11,30]. Nevertheless, studies evaluating the presence of RLS in patients presenting with neuropathy have not shown higher than expected prevalences of RLS. One retrospective study that evaluated 800 diabetic patients for neuropathic features reported that only 8.8% complained of RLS [31]. This was not significantly greater than 7% of controls. Interestingly, the percentage of Type II diabetics affected with RLS was significantly higher than Type I diabetics (P = 0.02). This difference may be attributable to the older age of the Type II population. A prospective study evaluating consecutive patients with electrophysiological evidence of neuropathy reported that eight of 154 (5%) met clinical criteria for RLS [32].

Parkinson’s disease (PD) and RLS share similar treatment modalities and have thus been postulated to share some pathophysiological similarities. A recent study reported that 20.5% of 303 consecutive PD patients reported RLS symptoms [33]. These PD patients with RLS had lower serum ferritin levels, but were otherwise indistinguishable. PD symptoms preceded RLS symptoms in 68%, suggesting that RLS is a non-motor manifestation of PD, rather than a precursor to the development of PD. Most patients in whom RLS occurred first had a positive family history for RLS.

Finally, RLS symptoms are reported in 11–27% of women during pregnancy, usually in the third trimester. In most cases, symptoms resolve shortly after delivery [34–36]. There are, however, no longitudinal studies documenting rates of familial inheritance or symptom recurrence in later life.

References


