



# Can we now say that commonalities between restless leg syndrome and migraine exist?

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## Abstract

The recent manuscript by Xinglong Yang and colleagues provided the first relatively reliable estimate of restless leg syndrome (RLS) prevalence among migraine sufferers, which was estimated at 19% (95% CI 14–24%). The implications of the association between the two conditions are wide, and call for further action aimed to address common disease mechanism-associated conditions such as sleep-related ones and associated burden.

**Keywords** Migraine · Restless leg syndrome · Prevalence · Sleep

The question is simple, the answer a little bit less. The facts say that patients with migraine have an increased risk of presenting restless leg syndrome (RLS), particularly if they have migraine with aura. Such an association has traditionally been reported in different studies but, similarly, it has traditionally been difficult to address due to the important dispersion of RLS prevalence among migraine sufferers.

This is the point from which Xinglong Yang and colleagues have moved in preparing their systematic review of observational studies [1], which now gives the scientific community some clear data. Previous information, as synthesized by the authors, showed prevalence of RLS among migraineurs between 11.3 and 33.3% and the crude data reported in their study show even broader bounds, i.e., between 6.5 and 34.9%. Now, thanks to the meta-analytic approach of the well-conducted study by Yang and colleagues, closer and more reliable bounds have been obtained, showing us that the prevalence of RLS among migraine sufferers is 19% (95% CI 14%–24%). In addition to this, they showed that such a prevalence is lower in Asia, which probably reflects the lower prevalence of RLS among Asian general population. In addition to this, the added value of this review lies in the

provision of an analysis on the risk of RLS in migraine sufferers compared to controls and in patients suffering from migraine with vs. without aura. The results show that migraine sufferers have up to threefold the risk of having RLS compared to controls, and that patients suffering from migraine with aura have a slightly higher risk (up to 34% more).

However, besides the epidemiological information that is intrinsic in a paper like this, the manuscript opens to the possibility of new visions on the association between RLS and migraine. One is connected to the possible shared mechanisms of action involving the dopaminergic nucleus of the dorsal-posterior hypothalamus, which is implicated in RLS and in migraine non-pain-related symptoms. A second, that would deserve more attention in future research, is connected to the possible increased risk of sleep-related problems in the population of patients with comorbidity between migraine and RLS. In fact, both the two conditions are associated to disordered sleep [2, 3], an association that could contribute to the creation and maintenance of a vicious circle that negatively affects patients' health and quality of life. Clinicians should therefore be careful in addressing the possible comorbidity and seek for appropriate treatments to reduce the burden of these conditions. The third aspect is precisely connected to the disease's burden and cost. Migraine is one of the most burdensome diseases, the first cause of disability among people under 50 years of age [4], and is associated to an important economic burden, being the average yearly cost per patient of migraine estimated at 1222 € [5]. Compared to that of migraine, the burden and cost of RLS have been less systematically evaluated but—as shown in a

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recent review [6]—RLS determines an important reduction of patients' quality of life compared to normative values of the SF-36, and was associated to an annual cost ranging between 2090 € and 2275 €.

So, if we have to get back to the initial question, it can be reasonably presumed that commonalities between RLS and migraine exist: they are associated, share some mechanisms of action and some symptoms, and are associated to relevant burden and economic cost. Much has however yet to be done: as the authors stated, the reason for the higher risk of RLS among patients suffering from migraine with aura is still to be understood, and the commonalities between the two conditions, and particularly their joint comorbidity with sleep disorders, the possibility to explore specific treatments providing benefits to both the two conditions, as well as the disability associated to RLS are still to be addressed systematically.

### Compliance with ethical standards

**Conflict of interest** The author declares that there are no conflict of interest.

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