

## Correspondence

### Prevalence of hidradenitis suppurativa in Brazil: a population survey

Hidradenitis suppurativa (HS) is a chronic and relapsing follicular autoinflammatory disorder that inflicts major impact in quality of life.<sup>1</sup> Population prevalence studies of HS are scarce, especially in Latin America.<sup>1,2</sup>

This study aimed to evaluate the prevalence of HS in the Brazilian municipalities with more than 300,000 inhabitants that represent about 40% of Brazilian population.

Residences from 87 Brazilian municipalities were surveyed by a random selection of residential phone numbers. Heads of household answered to whether any member had been diagnosed with HS or have recurrent inflammatory nodules in axillae and/or groins, based on questions validated by Esmann *et al.*<sup>3</sup> Calls were between 9 am and 8 pm from Monday to Saturday from January to June 2017.

A total of 6048 residences (17,004 inhabitants) were included. Figure 1 discloses main results according to demographic data. The overall prevalence of HS was 0.41% (CI 95% 0.32–0.50), with no differences among Brazilian regions ( $P = 0.62$ ). The mean (SD) age of the subjects with HS was 40.4 (18.4) years, and HS was more prevalent among adolescents (0.57%) and adults (0.47%) than children and aged subjects ( $<0.03\%$ ;  $P = 0.04$ ). There was a slight preponderance of the female sex (0.49% vs. 0.30%;  $P = 0.06$ ), but this proportion (female/male) increases with aging:  $<40$  years-old 0.46% vs. 0.38% and  $>40$  years-old 0.56% vs. 0.23% ( $P = 0.03$ ).

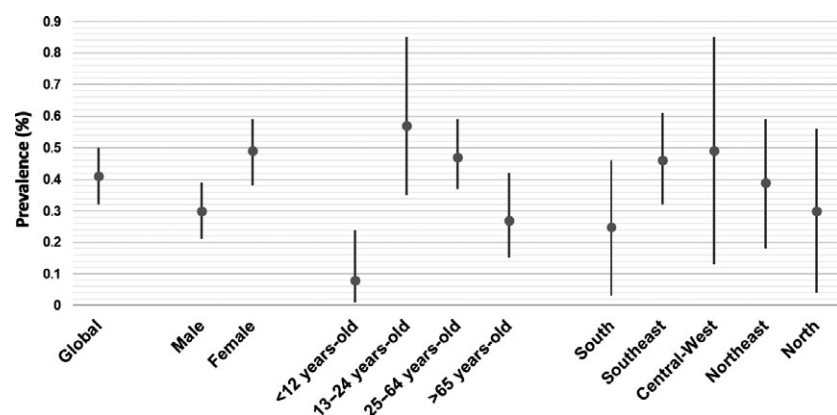
Bivariate and multivariate analysis of the prevalence of HS according to dermatologic workforce, latitude, and self-declared race from each municipality were performed by a generalized linear model (for methodological details, see Table 1 legend). These analyses disclosed a lower prevalence among cities with higher self-reported Amerindian ancestry ( $P < 0.01$ ).

Prevalence of HS around the world varies from 0.03% in Mali to 4.10% in Denmark, however this wide range are due to different study designs and the ethnicities of participants.<sup>4–6</sup>

Brazilian HS subjects were mainly adults between third and fourth decades, which corroborate the results of two previous hospital-based Brazilian studies.<sup>1,2</sup> The prevalence of the disease increases after puberty, according to apocrine glands maturity. Nevertheless, the female sex predominance was more discreet than expected, especially in young subjects.

Brazil is a highly miscegenated country with European, African, and Amerindian composition through the territory, allowing to ancestral inference. There is an association between HS and African ancestry miscegenation in the United States.<sup>4</sup> In our investigation, municipalities with greater Amerindian self-reported ancestry were associated with a marked lower prevalence for HS. It corroborates with another study that showed lower prevalence of HS in Hispanic/Latino patients, mostly descendant from Native American Indians.<sup>7</sup>

Low prevalence of psoriasis was also observed in Amerindians.<sup>8</sup> These two inflammatory diseases share some similarities, as responding to anti-TNF alpha inhibitors. Whether this lower prevalence in Amerindians is genetically determined or has an epigenetic factor (environmental factors) remains to be elucidated, but genetic studies of HS suggest an autosomal dominant pattern of inheritance (linkage 1p21.1-1q25.3).<sup>9</sup> Moreover, genetic analysis of single nucleotide polymorphisms in the TNF locus shows differences concerning ethnicity, as between Amerindians and white-admixed population.<sup>10</sup> There are also marked differences between Amerindians and Europeans when analyzing 18 adaptive immune response genes, suggesting variable susceptibility to infectious and inflammatory diseases,<sup>11</sup> as well as considering MEFV gene, that is less prevalent among Amerindians and is associated with some autoinflammatory



**Figure 1** Prevalence (and 95% confidence interval) of hidradenitis suppurativa according to gender, age-group, and Brazilian geographic region.\*

**Table 1** Prevalence of hidradenitis suppurativa according to dermatologic workforce, latitude, and self-declared race from the 87 Brazilian municipalities with population greater than 300,000 inhabitants.

	Bivariate		Multivariate	
	$\beta$ coefficient <sup>a</sup>	P-value	$\beta$ coefficient <sup>a</sup>	P-value
Self-declared race <sup>b</sup>				
Amerindian	-17.3	<b>&lt;0.01</b>	-15.6	<b>&lt;0.01</b>
Black/Brown	0.3	0.30	-0.5	0.94
White	-0.3	0.31	-1.3	0.07
Latitude	-0.4	0.57	-1.3	0.86
(south hemisphere)				
Dermatologist	-2.2	0.78	0.5	0.96
(per 10,000 inhab)				

Generalized Linear Model (Identity-link, Inverse Gaussian distribution; robust statistics);  $P(\text{constant}) < 0.01$ ; AIC=912. Bold values highlight the low prevalence in Amerindian ancestry.

<sup>a</sup>Unstandardized  $\beta$  coefficient \*10<sup>3</sup>;

<sup>b</sup>Percentile of self-declared race from each municipality according to 2010 Brazilian census.

disorders as HS. Thus, Amerindian ancestry may influence not only the prevalence of HS but probably disease severity and response to treatment.

Some limitations should be considered in this study: the degree of specificity may be low due to self-reported conditions, the severity was not assessed, as the ethnic composition of the sample could not be assured in a high miscegenated country. Nevertheless, our estimates seem to be reliable and comparable with other registries.

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