

Seasonal influence of the surgical outcome after thoracic sympathectomy for hyperhidrosis

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Abstract Analyze the seasonal variation of the surgical results after sympathectomy through the seasons of the year. The surgical results are better in the spring, and the sudomotor reflex is worst in summer. Comparison of surgical results of distinct techniques should be done under the same climatic conditions.

Keywords Hyperhidrosis · Sympathectomy · Sympathectomy/adverse effects · Seasonal variations

Introduction

Results of thoracic sympathectomy to remedy localized hyperhidrosis have improved dramatically. The surgical tactics used have focussed on resolving primary hyperhidrotic symptoms, as well as reducing the frequency and intensity of the sudomotor reflex. While there is speculation that the sudomotor reflex may be subjected to seasonal

change [1], data pertaining to its fluctuations and any attempts to grade symptomatic resolution are sparse. The purpose of this study, therefore, is to analyze these parameters.

Materials and methods

Patients with typical primary palmar and plantar hyperhidrosis were submitted to R3/R4 sympathectomy by the same surgeon. Variables assessed were resolution of primary symptoms (0–100 analog scale; zero, no resolution; 100, complete resolution) and the incidence and intensity of the sudomotor reflex [2] (dichotomic and ordinal scales, respectively). Outcomes were analyzed via the computational program SPSS 13.0 for Windows, with the level of statistical significance set at $p < 0.05$. This study was approved by the Ethics Committee for Human Research of the Medical School at the State University of Campinas (Protocol number 122/2006).

Results

Between the beginning of March 2006 and the end of June 2007, 80 consecutive patients were studied. Three patients (3.75%) breached the protocol, and two others (2.5%) had undergone repeat procedures for recurrence of palmar symptoms. These five patients (6.25%) were excluded from final analysis. The patients were otherwise evaluated using the same questionnaire on separate occasions—first, on day 7 postoperatively (here referred to as “immediate” assessment), and then in the spring of 2007 (353.63 ± 15.13 days of follow-up; range 103–573 days), in the summer of 2008 (413.63 ± 15.13 days; 163–633 days) and finally

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during the winter period of 2008 (623.63 ± 15.13 days; 373–843 days).

For the immediate assessment, all patients reported complete resolution of palmar symptoms. The median score for plantar resolution was 70.00 ± 60.00 (Kolmogorov–Smirnov test $p < 0.001$), on a scale from 0 to 100. Forty-two (56%) patients reported compensatory sweating at this time, graded as slight by 21 (28%), moderate by 20 (26.7%), and intense by one patient (1.3%).

By the spring of 2007, complete resolution of palmar hyperhidrosis persisted for all patients ($N = 75$), while the median for plantar resolution was 50.00 ± 100.00 (Kolmogorov–Smirnov test, $p < 0.001$). In addition, 55 patients (73.3%) reported sudomotor reflex activity—slight for nine patients (12%), moderate for 15 (20%), and intense for 31 (41.3%).

In the summer of 2008, the hands of all patients were likewise completely dry, whereas the median score for plantar resolution was 0.00 ± 50.00 (Kolmogorov–Smirnov test, $p < 0.001$). At this time, 66 patients (88%) attested to active sudomotor reflex—slight for six patients (8%), moderate for 18 (24%), and intense for 42 (56%).

Finally, in the winter of 2008, six patients (8%) cited a decline in palmar resolution (down to 80 from a score of 100), although the median score was still 100 ± 0.00 ; and for plantar resolution, the median was 50.00 ± 80.00 . Sudomotor reflex was active in 42 patients (56%), characterized as slight for 25 patients (33.3%), moderate for 12 (16%), and intense for 5 (6.7%).

When group comparisons were made, we found that resolution of palmar symptoms was significantly lower in the winter than in other seasons of the year ($p < 0.001$, Friedman test; followed by Wilcoxon test, $p = 0.014$), and that plantar resolution was also significantly worse during the summer months ($p < 0.001$, Friedman test). On subsequent analysis (Wilcoxon test), plantar resolution fared better at immediate assessment, compared with both summer ($p < 0.001$) and winter ($p = 0.001$) seasonal influence, but not when compared with spring ($p = 0.235$). Furthermore, spring assessment results surpassed those of both summer ($p < 0.001$) and winter ($p = 0.021$), but plantar resolution was better in winter than in summer ($p = 0.029$).

Sudomotor reflex also varied significantly when comparing the immediate assessment with spring ($p < 0.001$)

and summer ($p < 0.001$), where it occurred with greater frequency, but not in comparison with winter ($p = 0.204$). Likewise, reflex intensity increased significantly from the time of immediate assessment relative to later evaluations in spring ($p = 0.003$), summer ($p < 0.001$), and winter ($p < 0.001$).

Comment

Through this study, our logical expectation that the sudomotor reflex would be worst in summertime was confirmed. However, the variations reported here for resolution of primary hyperhidrotic symptoms are completely new data, and have not been quantified so far.

Any seasonal change postsympathectomy may impact the overall treatment satisfaction of these patients [3]. These data show that it is absolutely plausible for the same patient to declare low satisfaction at one moment and high satisfaction the next, based on seasonal variation. It is thus unfair to interpret their feedback as capricious, knowing they are frequently (and wrongly) tagged as emotionally unstable [4].

Our study also emphasizes that these patients must be analyzed as strict cohorts, using standardized assessments in defined yearly seasons. All parameters researched in this thoracic sympathectomy postoperative group showed distinct seasonal fluctuation throughout the year.

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