

ORIGINAL
ARTICLE

Risk factors associated with hemorrhoidal symptoms in specialized consultation

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SUMMARY

Epidemiology and risk factors of hemorrhoidal disease are not well defined.

Aims and methods — Past history and events occurring during the last two weeks before a medical visit for acute hemorrhoidal symptoms were analyzed and compared with controls consulting for any other diagnosis without exclusion.

Results — Among complete inquiries returned by 931 private gastroenterologists, files from 1033 patients (542 males) and 1028 controls (504 males) were randomly selected. Hemorrhoidal disease patients were younger (47 ± 14.5 vs. 52 ± 16.5 yrs; $P < 0.0001$); sex ratio was not different from controls. Factors significantly associated with hemorrhoidal crisis were: past history of hemorrhoidal symptoms, age < 50 yrs, past history of anal fissure, occupational activity (OR 5.17; 1.95; 1.72; 1.43; $P < 0.1$) and recent unusual events: spicy diet, constipation, physical activity, alcohol intake (OR 4.95; 3.93; 2.79; 1.99; $P < 0.1$). Stress protected against hemorrhoids (OR 0.49; $P < 0.0001$). For women aged less than 40 yrs, no significant risk factor related with genital activity was found for hemorrhoidal disease.

Conclusion — For young patients, especially those with a past hemorrhoidal history, spice or alcohol intake and constipation are risk factors for hemorrhoidal crisis. For young women, prevention is essentially based on treatment of constipation associated with gynecological events.

RÉSUMÉ

Résultats d'une enquête sur la recherche d'événements déclenchant ou influençant la crise hémorroïdaire. Enquête PREDIC

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L'épidémiologie et les facteurs de risque de la maladie hémorroïdaire sont mal connus car les études disponibles donnent des conclusions très variables.

Objectifs et méthodes — Cette étude a recensé les antécédents et les événements récents associés à la consultation pour une crise hémorroïdaire aiguë comparativement à ceux notés chez des malades témoins consultant pour toute autre pathologie sans exclusion.

Résultats — Parmi les données fournies par 931 gastro-entérologues libéraux, ont été sélectionnés au hasard les dossiers de 1033 malades (542 hommes) et 1028 témoins (504 hommes). Les malades étaient plus jeunes ($47 \dots 14,5$ vs $52 \dots 16,5$ ans; $P < 0,0001$), le sex ratio identique. Étaient associés à une crise hémorroïdaire plutôt qu'à un autre diagnostic: antécédent hémorroïdaire, âge < 50 ans, antécédent de fissure anale, activité professionnelle (OR 5,17; 1,95; 1,72; 1,43; $P < 0,01$) et quatre événements survenus dans les 15 jours précédents: consommation d'épices ou d'alcool, constipation, effort physique (OR 4,95; 1,99; 3,93; 2,79; $P < 0,01$). Un stress récent amenait à consulter pour une cause non hémorroïdaire (OR 0,49; $P < 0,0001$). Chez les femmes de moins de 40 ans l'analyse multivariée des événements associés ne retenait aucun facteur lié à la vie génitale féminine.

Conclusion — Chez le sujet jeune, surtout s'il a un passé hémorroïdaire, la consommation d'épices, d'alcool et la constipation sont à éviter, et chez la femme en période d'activité génitale la prévention repose essentiellement sur le traitement de la constipation.

Introduction

Epidemiological features of hemorrhoidal disease are not well known because available studies have provided very variable conclusions. Risk factors frequently mentioned include heredity, high socioeconomic level, obesity, smoking [1-6]. A diet rich in fats, alcohol, spices and pepper as well low fluid intake have been implicated [4-7]. In women, certain obstetric events have been reported to favor symptom development [4, 8-10]. The role of intestinal transit has been discussed: retained as influential in the rare studies examining diarrhea [6] and subject to contradictory conclusions for constipation [1, 3, 4, 6, 7].

We surveyed a cohort of patients attending gastroenterology consultations to examine patient history and events preceding the

onset of a symptomatic crisis, comparing findings with data collected in a control population.

Patients and methods

The purpose of this case-control study was to define the clinical profile of patients attending gastroenterology consultation for hemorrhoidal crisis and describe events occurring during the preceding 15 days in comparison with non-selected control patients attending the same consultation for another reason. Hemorrhoidal crisis was defined as the development of one or more of the following symptoms within the preceding 15 days: pain, bleeding, pruritis, tumefaction, seeping. The crisis was confirmed when the physical examination ruling out a different diagnosis. In both populations, the consulting gastroenterologist noted past history and events occurring during the 15 days preceding the consultation (3 preceding months for obstetrical events). From February to March 2004, among 2086 private gastroenterologists contacted by the Ipsen-Beaufour physician-information network, 1128 initially accepted to participate in the study and recruit five cases and five controls. The study was conducted on 9310 exploitable report files returned by

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931 practitioners. Among these files, 1033 cases and 1028 controls were selected at random with adjustment for geographical distribution. The sample size enabled analysis with precision to the order of 2%.

Data are expressed as mean \pm standard deviation. Comparisons between groups were performed by analysis of variance for means and chi-square test for percentages. Variables found to be significant at univariate analysis were included in the logistic regression model. The significance threshold was set at $P = 0.05$. Data were processed with SAS version 8.2 on SUN workstations.

Results

Patients

The cohort of 1033 patients presenting an acute hemorrhoidal crisis was composed of 542 men (52.5%) and 491 women (47.5%), mean age 47 ± 14.5 years (range 16-91 years), mean body weight 70 ± 13 kg (range 40-135), mean height 169 ± 8.5 cm (range 137-195 cm), mean body mass index (BMI) 24.5 ± 4.0 (range 15-50). Mean age of men was not significantly different from that of women (47 versus 46 years). The patients lived in urban areas (58%), semi-rural areas (25%) and rural areas (14%). Two-thirds of patients ($N = 611$, 68%, missing data for 131) had an occupational activity and 16% were retired (table I).

Symptoms described by the patients were, in decreasing order of frequency: pain ($N = 637$ patients, 62%), bleeding ($N = 584$, 56.5%), tumefaction ($N = 416$, 40%), pruritis ($N = 213$, 21%), and seeping ($N = 153$, 15%). Sixteen patients (1.5%) complained of associated continence disorders. Physical examination disclosed prolapse in 282 patients (31%), thrombosis in 261 (26.5%), edematous tumefaction in 241 (28%) and none of these elements in 187 (18%). Several abnormal elements were observed in 62 patients (6%), thrombus-edematous tumefaction being the most frequent association (2.5%).

The proctology history noted a past history of hemorrhoid crisis for 591 patients (57%), anal fissures for 145 (14%), anal fistula for 25 (2.5%) and another perineal suppuration for 8 (1%). During the two weeks preceding consultation, 912 patients (88%) had experienced a remarkable event (table II). For the

Table I. – Socio-occupational categories for patients and controls. No significant difference between the two groups.

Répartition selon les catégories socio-professionnelles des populations actives malades et témoins. Pas de différence significative entre les deux populations.

Occupationally active ; N (%)	Cases, N = 611	Controls, N = 488
Farmers	53 (8.7)	47 (9.6)
Craftsmen. tradesmen. firm directors	37 (6.1)	40 (8.2)
Executives. intellectual professions	88 (14.4)	68 (13.9)
Intermediary professions	127 (20.8)	10 (22.5)
Employees	197 (32.2)	146 (29.9)
Laborers	109 (12)	77 (15.8)

83 patients who had started a medical treatment during the two weeks before consultation, 45% were taking nonsteroidal anti-inflammatory drugs, 16% antibiotics, 4% an association of these two drugs, and 35% antidepressor drugs.

Among the 490 women consulting for hemorrhoidal crisis, 373 (82%) (missing data for 36 patients) had two infants on average (range 1-8), with vaginal delivery for 87% of them, 135 were taking oral contraceptive drugs (32%) (missing data for 70), and 171 were in post-menopause (38%) (missing data for 39). Specific factors which were associated in women are given in table III.

Control population

The control population was composed of 504 men and 524 women, mean age 52 ± 16.5 years. Controls were not different from the study cohort in regard to sex ratio, but were significantly younger (47 years versus 52 years, $P < 0.0001$) and significantly taller (169 cm versus 168 cm, $P < 0.05$). There was no difference for body weight or BMI. There was a significantly

Table II. – Events reported by patients and controls during the last 15 days.

Événements survenus dans les 15 jours précédant la consultation pour les populations cas et témoins.

N (%)	Cases. N = 1033	Controls. N = 1028	P
Recent acute constipation	560 (54)	253 (24.5)	< 0.0001
Physical exertion	103 (10)	22 (2)	< 0.0001
Alcohol intake	108 (10.5)	36 (3.5)	< 0.0001
Spice intake	119 (11.5)	22 (2)	< 0.0001
Travel	97 (9.5)	65 (6)	< 0.01
Ano-rectal trauma	14 (1.5)	2 (0)	< 0.05
Insomnia	129 (12.5)	154 (15)	NS
Cessation of smoking	48 (4.5)	51 (5)	NS
Diet	58 (5.5)	64 (6)	NS
Acute diarrhea	91 (9)	186 (18)	< 0.0001
Stress	407 (39.5)	487 (47.5)	< 0.001
Introduction of drug	83 (8)	119 (11.5)	< 0.01

Table III. – Past history and recent events for women.*Antécédents et événements récents d'ordre gynécologique et obstétrical dans les deux populations féminines.*

N (%)	Cases N = 491	Controls. N = 524	P
Current pregnancy	33 (7.5)	11 (2.5)	< 0.001
Recent delivery (< 3 months)	19 (4)	4 (1)	< 0.001
Premenstrual period	84 (17)	65 (12.5)	< 0.05
Not nulliparous	373 (82)	369 (81)	NS
Current oral contraception	135 (32)	145 (33)	NS
Introduction of oral contraception	7 (1.5)	5 (1)	NS
Introduction of hormone replacement therapy	8 (1.5)	10 (2)	NS
Menstrual cycle	39 (8)	40 (7.5)	NS
Post menopause	171 (38)	238 (50)	< 0.001

higher proportion of patients with an occupational activity (68% versus 56%, $P < 0.0001$), and of retired patients (15.8% versus 24%). Distribution by socio-occupational category was not significantly different (table I). Compared with the control population, the study population presented a significantly higher proportion of patients with a history of hemorrhoidal disease (57% versus 19.5%, $P < 0.0001$), anal fissure (14% versus 7.3%, $P < 0.0001$), and a significantly lower proportion of patients with a history of inflammatory bowel disease (1.5% versus 3%, $P < 0.05$). There was no difference regarding anal or perineal suppuration. The respective rates of events occurring during the two weeks preceding consultation are presented in table II for the two populations and specific factors found in women in table III. Results of the multivariate analysis, performed with significantly significant variables at univariate analysis, are presented in table IV. To evaluate the influence of gynecological or obstetric events in women of reproductive age in comparison with factors retained for the general population, the population was individualized for women aged less than 40 years. These results are presented in table V.

Discussion

The definition for hemorrhoidal crisis retained for this study was acute onset of symptoms compatible with hemorrhoidal disease after physical examination by a specialist ruled any other diagnosis. The fact that the physical examination can be normal (18% in the present series), emphasizes the insufficiency of physical examination to define hemorrhoidal disease. Symptoms are non-specific and can be related to other local (fissure, abscess, cancer, sexually transmissible disease) or regional (rectal) conditions. This selection method might be considered overly restrictive since symptomatic patients who did not consult were not included. Approximately 80% of patients experiencing "benign anorectal symptoms" or symptoms compatible with hemorrhoidal disease do not consult [11, 12]. Consequently, the risk examined in the present study can be designated more accurately as the risk of consulting for hemorrhoidal crisis.

Among symptoms retained for the definition of hemorrhoidal crisis, the statistical analysis confirmed the predominance of the

Table IV. – Logistic regression analysis of events associated with hemorrhoidal crisis.*Étude en régression logistique des événements associés à la crise hémorroïdaire chez les 1 033 cas et les 1 028 témoins.*

	Odds-ratio	Interval of confidence	P
History of hemorrhoidal disease	5.17	4.05-6.61	< 0.0001
Spice intake	4.95	2.65-9.25	< 0.0001
Recent acute constipation	3.93	3.09-5.00	< 0.0001
Physical exertion	2.79	1.60-4.87	< 0.01
Alcohol intake	1.99	1.21-3.27	< 0.1
Age < 50 years	1.95	1.50-2.52	< 0.0001
History of anal fissure	1.72	1.18-2.51	< 0.005
Occupationally active	1.43	1.10-1.86	< 0.1
Travel	1.29	0.84-1.97	0.250 (NS)
BMI > 30	1.09	0.70-1.70	0.716 (NS)
Stress	0.49	0.39-0.63	< 0.0001

Table V. – Logistic regression analysis of events associated with hemorrhoidal crisis in women under 40 yrs.*Etude en régression logistique événements associés à la crise hémorroïdaire dans la population féminine âgée de moins de 40 ans.*

	Odds-ratio	Interval of confidence	P
Recent acute constipation	6.71	3.53-12.74	< 0.0001
History of hemorrhoidal disease	5.08	2.48-10.39	< 0.0001
Spice intake	10.28	0.81-130.87	0.072 (NS)
Recent delivery	7.95	0.67-94.23	0.100 (NS)
BMI > 30	3.17	0.30-34.68	0.345 (NS)
Alcohol intake	2.07	0.24-18.05	0.509 (NS)
History of anal fissure	1.72	0.60-4.87	0.310 (NS)
Physical exertion	1.59	0.25-10.20	0.623 (NS)
Occupationally active	1.59	0.81-3.14	0.178 (NS)
Travel	1.59	0.45-5.56	0.468 (NS)
Not nulliparous	1.02	0.53-1.98	0.943 (NS)
Premenstrual period	0.87	0.43-1.74	0.695 (NS)
Stress	0.24	0.13-0.44	< 0.0001

classical triad: pain, bleeding, tumefaction. Anal pruritis was the fourth leading symptom and concerned more than one-fifth of patients despite the fact that it is generally considered to be associated relatively little with hemorrhoidal disease: pruritis is the primary symptom in one out of two patients and is associated with hemorrhoids in 10% [13]. Physical examination demonstrated that nearly two-thirds of patients presented external hemorrhoids expressed as edema or thrombosis. Hemorrhoidal disease arises from two mechanisms, mechanical and inflammatory, and can correspond to different manifestations or triggering factors. This aspect of the pathogenesis cannot be examined with the present data due to the frequency of associated functional and physical signs in the study population making it difficult to constitute subgroups for comparison with the control population.

The sex ratio of the study cohort was not different from that in the control population. The study population was however younger by five years on average, with no difference in age by gender. Similar findings were noted in a previous observational study conducted in France in 1991 among 5611 patients [2] and in population-based studies [3]. This age difference could explain the higher proportion of occupationally active patients. There was no predominant socio-occupational category. This is probably in relation to the absence of an influence of work position or sports activities [4]. Nevertheless, a large-scale study including a population-based survey and data from medical registries reported an over-representation of upper-class social categories, but uniquely for data extracted from hospital registries, while no specific socio-economic profile was found for data obtained by telephone interviews [3]. The logistic regression analysis revealed that young age was not a major risk factor for consulting for hemorrhoidal crisis: it was ranked sixth among risk factors. Thus occupational activity would have little significance because it is probably age-related. Unlike one case-control study, we did not find obesity to be a risk factor [6].

The leading risk factor for consulting for hemorrhoidal crisis was a history of a similar crisis, emphasizing the chronic nature of this disease. In one study of patients consulting for external thrombosis, a similar episode was reported for 44% of patients,

and 15% experienced a subsequent episode 7 to 25 months later [14]. A 61% recurrence rate within four years has also been reported in a consecutive series of patients treated for symptomatic grade 2 hemorrhoids [14]. The second leading risk factor was uncommonly frequent consumption of spices; alcohol consumption was ranked fifth. Sielezneck et al. also noted higher consumption of spices in patients consulting for hemorrhoidal disease than in controls [7], but others were unable to confirm the relationship in work conducted under the same conditions [4]. Logistic regression also identified acute episode of constipation during the 15 days preceding consultation as a significant risk factor. Initially reported by Burkitt [1], this association between constipation and hemorrhoidal disease is a subject of debate. Several case-control studies and registry data mainly coming from an American group have not found any relationship [4, 7], but two French case-control studies did [4, 7]. The present study provides an original point of view since it took into account recent and acute episodes of constipation. It is known that any sudden increase in straining for defecation can favor the development of symptoms, especially in patients with a history of hemorrhoidal disease. Inversely, a recent episode of diarrhea was a risk factor for consulting for a condition other than hemorrhoidal crisis, but was not found significant at multivariate analysis. This result is in contradiction with other studies which have noted an association between hemorrhoidal disease and diarrhea; but these studies were conducted in much older patients suggesting a possible selection bias [5, 6]. The influence of a history of anal fissure can be explained by the frequent association of anal fissures with hemorrhoidal disease [5], an association noted in 8% of patients in a prevalence survey devoted to patients attending gastroenterology consultations for proctological diseases [2]. According to our data, a recent episode of stress would be a risk factor for consultation for a gastrointestinal problem other than hemorrhoidal crisis, which suggests that other gastrointestinal conditions would be more sensitive to stress than hemorrhoidal disease.

Episodes of female genital life are often described as affecting hemorrhoidal disease [4, 8]. The proportion of women in the premenstrual period was higher in our female population with

hemorrhoidal crisis than in the control population. Similarly pregnancy and recent delivery were found more often in the study population. We wanted to study the effect of these factors related to gynecological and obstetric events in relation to that of non-specific factors demonstrated for the whole population. We therefore performed an analysis with the subgroup of women aged less than 40 years which showed that factors related to female genital life had no effect and that the significant role of factors not related to gender (history of hemorrhoidal disease and recent episode of constipation) were significant, as found in the general population. This negative result can be explained by the low frequency of obstetrical and gynecological events in this series and their possible association with other risk factors, particularly constipation. Abramowitz et al. have previously demonstrated that hemorrhoidal thrombosis, which occur in 20% of women after delivery, are favored by constipation [9]. In another study, it was also suggested that other factors such as constipation participate in hemorrhoidal manifestations as much as, if not more than, variation in hormone cycle [10].

Conclusion

In this study, hemorrhoidal crises were observed in active young subjects, with no gender predominance. The data reported here confirm the classical presentation with the triad of pain, bleeding and tumefaction and the greater frequency of external than internal hemorrhoidal disease. In the general population, dietary factors (spices, alcohol) played a predominant role, as well as episodes of acute constipation. In young women, factors related to genital activity were not found to have a significant influence, and had less impact than history of hemorrhoidal disease and acute constipation. Thus in the young subject, particularly with a history of hemorrhoidal manifestations, spicy diet and alcohol as well as episodes of acute constipation should be avoided. Prevention in women of reproductive age should focus on treatment of constipation.

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