

# Diagnosis of BPH and treatment of LUTS among GPs: a European survey

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## SUMMARY

**Aims of the study:** This survey was conducted in France, Germany, Italy, Spain and UK, with the aim to assess diagnosis and therapy of BPH patients in clinical practice. **Methods used to conduct the study:** A selected cohort of 455 general practitioners (GPs) in Europe were asked to report information on BPH patients with lower urinary tract symptoms (LUTS), including patient characteristics, diagnostic procedures, severity of illness, symptoms duration and underlying conditions. The GPs provided data relating to 886 patients. **Results of the study:** The diagnostic work-up included description of symptoms (74.9–85.1%), rectal examination (55.4–82.1%) and the determination of PSA (79.1–94.7%). Transrectal sonography was popular in Italy and France (51.1% and 55.9%, respectively), less so in Germany (15.3%) and Spain (13.1%) and not at all in the UK (2.3%). At diagnosis, the most common symptom was nocturia (71–88%), followed by frequency (15–79%), urgency (43–68%) and weak stream (47–64%). The most common combination was the triad nocturia–frequency–feeling of incomplete emptying (22–31%). The mean  $\pm$  SD LUTS severity score was similar in all countries: The main aim of treatment was the resolution of nocturia, which had an average score that reflected an important need ( $> 3.5$ ) closely followed by frequency (3.3–3.9). **Conclusions drawn from the study and clinical implications:** This survey has shown that the most common LUTS is nocturia. Analyses of the symptoms' pattern revealed that the most common combination appears to be the triad nocturia–frequency–feeling of incomplete emptying. An association between LUTS and heart disease, diabetes and hypertension suggests that the pharmacological treatment should be devoid of effects on the cardiovascular system. With alpha blockers as first line treatment of LUTS, respondents were more concerned with hypotensive episodes resulting in falls, rather than about other typical side effects (e.g. ejaculation disorders and lowered libido). The survey highlights educational needs in diagnostics.

## Introduction

Ageing men reporting lower urinary tract symptoms (LUTS) suggestive of benign prostatic hyperplasia (BPH) are becoming an increasingly important issue in general practice, in view of both the frequency and consequences of this complaint. It has been estimated that the incidence of moderate to severe LUTS amounts to 30–40% in men older than 50 years of age (1,2) and it has been shown that the incidence and prevalence of LUTS increase linearly with age up to about 80 years. (3,4). Consequently, the absolute number of men consulting GPs because of LUTS will inevitably increase considerably as the

European population ages rapidly (5). It has been established that LUTS are associated not only with a reduction in healthcare-related quality of life (6,7) but also with increased healthcare costs (8). Healthcare costs vary considerably from country to country (8) because of the documented differences in management of patients with LUTS/BPH both in terms of diagnostic work-up (9–11) and treatment (12). A preliminary, explorative survey was initially performed in five major European countries (France, Germany, Italy, Spain and UK) asking general practitioners (GPs) to describe LUTS suggestive of BPH deemed to be sufficiently severe to warrant investigations, as well as their diagnostic work-up to assess

### What's known

BPH is an important issue in general practice

- LUTS are associated with poor Quality of Life (QoL) and increased health costs
- The most common symptom, among LUTS, is nocturia.

### What's new

There is a big difference in BPH diagnostic work-up across EU countries

- Symptoms frequency rate is different across EU countries
- The greatest concern for GPs is the risk of hypotension, possibly related to the use of alpha-blockers
- The most common combination of symptoms (in terms of frequency and bothersomeness) seems to be the triad nocturia–frequency–incomplete emptying
- Ejaculatory disorders are not considered a concern because, even though they are common, they are not bothersome.

the extent of differences among countries. The survey was then followed by a quantitative survey amongst a total of 455 GPs. All data from the quantitative survey was analysed through descriptive statistics such as distribution, frequency count, mean and median.

## Methods

The quantitative survey consisted of face-to-face interviews with GPs in five European countries: France, Germany, Italy, Spain and UK. The GPs who were invited to be interviewed, were randomly selected in each country from local database of physicians based on specific geographical location. The total GP sample in each country was structured to be representative of the national universe of GPs. A sample size of at least 90 GPs per country was chosen to ensure statistically significant results.

All participating GPs were screened to ensure that they managed at least two male patients with LUTS each month, personally managed and decided the treatment therapy for the LUTS, had been practicing as GPs for more than 3 years and less than 35 years.

A preliminary survey was conducted with 125 physicians located in the five European countries, asking them to describe the symptoms of the last two male patients who had consulted them because of LUTS suggestive of BPH in detail, as well as their diagnostic work-up, using a semi-structured questionnaire that included several open questions about the concerns of the patient and the main issues seen from their own point of view. As the aim of this preliminary survey was to understand GPs' opinions about the management of LUTS and the symptoms experienced by their patients, the sample was not structured in any way. In each country, individual in-depth interviews were conducted with 10 GPs located in different towns throughout each country. The replies were used to finalise the structured questionnaire for the definitive quantitative survey, as well as for the calculation of the sample size. Their distribution is provided in Table 1.

General practitioners were asked to provide data relating to anonymised, uncoded patient records. These records regarded the last two BPH patients who had consulted the GPs because of LUTS over the last month and to whom they had prescribed pharmacological treatment personally (alpha-blocker and/or 5-alpha-reductase inhibitor). Unfortunately, patient selection was focused on BPH patients with LUTS and thus the study does not consider LUTS patients with underlying causes other than BPH. Thus, it is not possible to exclude that the findings

were due to the selection of a particular subgroup of LUTS sufferers. This represents a limitation in the study design. Using the records of these patients, the GP was asked to provide the following information: age; date of first diagnosis; who had made the first diagnosis of BPH (GP, other GP, urologist, other specialist, if so which); presence/absence of each LUTS; diagnostic work-up (description of symptoms, International Prostate Symptom Score i.e. IPSS questionnaire (13), digital rectal examination, prostate-specific antigen [PSA], suprapubic sonography, blood tests, urinalyses, flow measurement, transrectal sonography, urodynamics, urine culture, other); prostatic volume at first diagnosis and at present, concomitant diseases (hypertension, renal failure, liver failure, heart disease, cystitis/urethritis, diabetes mellitus, bacterial prostatitis, upper urinary tract infections, other); the severity of symptoms expressed on a 5-item semi quantitative rating scale (1 = mild 5 = severe); to what extent a broad range of symptoms/signs (frequency, nocturia, feeling of incomplete emptying of bladder, difficulty to initiate micturition, feeling of urinary urgency, weak urinary stream, intermittence of urinary flow, prostatic volume) required treatment using a 5-item semi quantitative rating scale (1 = minimal need 5 = maximum need).

## Results

The GPs provided data related to a total of 886 patients suffering from LUTS (Table 1). Mean age of patients was 68 years with a broad range (39–98 years). The proportion of elderly patients, defined as patients who were older than 65 years (57–67%), was higher than the proportion of younger patients. Few very old patients ( $\geq 80$  years) were included in the survey (4.2–9.9%). Most patients had concomitant diseases (87.4–96%). The most common concomitant disease was arterial hypertension (52.4–75.1%), followed by diabetes mellitus (14.5–37.5%) and heart disease (11.2–27.1%) (Table 1).

The time that had elapsed since diagnosis varied considerably in all countries. On average, it was particularly short in the UK (mean time 24.8 months), because GPs recalled a much larger proportion of patients who had been diagnosed with LUTS recently ( $\leq 6$  months) in the UK (31.4%) than in other countries, especially France (6.7%), where the mean time elapsed since the diagnoses was the longest (64.2 months) (Table 1).

The diagnosis had been made by a GP (the respondent or another GP) in most of the cases (78–96%). The proportion of patients in whom LUTS had been diagnosed by a urologist was negli-

Country	France	Germany*	Italy	Spain	UK	Total
GPs	90	90	96	90	89	455
Patient records	179	177	190	168	172	886
<b>Age (years)</b>						
(mean $\pm$ SD)	68.3 $\pm$ 8.4	68.4 $\pm$ 7.3	67.5 $\pm$ 8.9	67.5 $\pm$ 7.0	68.7 $\pm$ 9.3	68.1 $\pm$ 8.1
% Pat > 65 years	57.0%	67.2%	57.3%	63.8	59.3%	61%
% Pat > 80 years	8.4%	5.6%	7.9%	4.2%	9.9%	7%
<b>Concomitant</b>						
diseases (% pat)	10.6%	4.0%	12.6%	9.5%	12.2%	9.4%
None	56.4%	75.1%	69.5%	52.4%	54.1%	63.3%
Hypertension	0.6%	7.3%	0.5%	1.8%	1.7%	2.8%
Renal failure	0	2.3%	1.6%	0.6%	0	1.0%
Liver failure	11.2%	27.1%	14.2%	11.3%	13.4%	16.6%
Heart disease	1.7%	2.3%	3.2%	2.4%	1.7%	2.3%
Cystitis/urethritis	17.3%	36.7%	17.9%	37.5%	14.5%	25.0%
Diabetes mellitus	1.7%	0.6%	1.1%	1.2%	1.2%	1.2%
Bacterial prostatitis	22.9%	7.3%	9.5%	7.1%	14.5%	14.2%
Others						
<b>Time since BPH diagnosis</b>						
(months – mean $\pm$ SD)	64.2 $\pm$ 47.8	33.8 $\pm$ 42.1	56.4 $\pm$ 47.9	43.7 $\pm$ 43.8	24.8 $\pm$ 27.4	42.4 $\pm$ 41.8
% Pat diagnosis	6.7%	26.6%	7.2%	16.1%	31.4%	20.0%
< 6 months						
% Pat diagnosed by	95.0%	94.9%	83.7%	75.0%	87.2%	88.4%
GP (respondent)	1.0%	0.6%	2.6%	3.0%	6.4%	2.5%
Other GP	3.4%	4.5%	12.6%	20.2%	5.8%	8.4%
Urologist	0.6%	0	1.1%	1.8%	0.6%	0.7%
Others						
<b>(% Pat)</b>						
Descript symptoms	7.8%	80.2%	18.4%	85.1%	76.7%	66.2%
IPSS questionnaire	82.1%	9.6%	3.2%	57.1%	14.5%	15.4%
Digital rectal exam	91.6%	79.1%	20.0%	55.4%	78.5%	63.8%
PSA	45.3%	79.1%	94.7%	88.1%	89.0%	87.9%
Suprapubic echography	34.1%	29.4%	36.3%	22.6%	12.2%	29.8%
Blood tests	34.1%	36.2%	34.7%	63.1%	58.1%	43.2%
Urinalyses	2.2%	81.9%	52.1%	73.8%	57.6%	60.8%
Flow measurement	55.9%	13.0%	35.8%	17.9%	15.1%	16.8%
Transrectal echography	6.7%	15.3%	51.1%	13.1%	2.3%	27.9%
Urodynamics	6.7%	9.6%	6.3%	13.1%	13.4%	9.5%
Urine culture	1.1%	14.1%	30.0%	21.4%	51.7%	24.0%
Others		2.8%	3.2%	0.6%	8.1%	3.2%

ble in France, Germany and the UK (3.4–5.8%), but not in Italy (12.6%) and Spain (20.2%) (Table 1).

### Diagnostic work-up

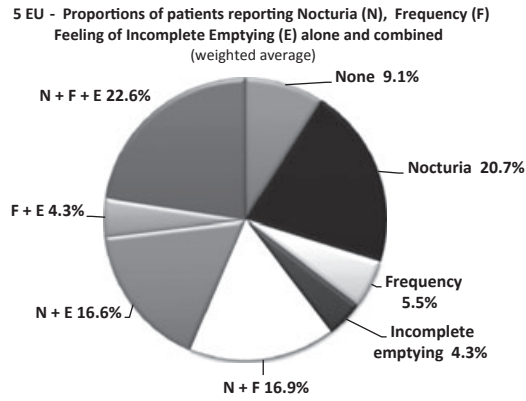
The diagnostic work-up usually included a description of symptoms (74.9–85.1%), a rectal examination (55.4–82.1%) and the determination of PSA (79.1%–94.7%) (Table 1). In Italy, unlike other countries, symptoms were described only in 18.4% of cases and only 20% of patients underwent a digital rectal examination. Transrectal sonography was popular in Italy and in France (51.1% and 55.9%, respectively), less so in Germany (15.3%) and in Spain (13.1%)

and not at all in the UK (2.3%); the same was true, albeit in fewer patients in all countries, for suprapubic echography. Blood and urine tests were prescribed everywhere, but to different proportions of patients: blood tests were prescribed to about one-third of patients in France, Germany and Italy and nearly two-thirds of patients in Spain and the UK; urinalyses were prescribed to only one-third of patients in France, about one half in Italy and the UK and to the majority of patients in Spain (74%) and in Germany (82%). The differences in the prescription rate of urinalysis is reflected by the differences in the prescription of urine cultures, which

varied considerably from almost none (6.7%) in France to 30% in Italy and 51.7% in the UK. The IPSS was almost never used (3.2–14.5%) except in Spain (57.1%). Also flow measurements and urodynamics did not belong to the routine diagnostic work-up (2.2–17.8%) and (6.3–13.4%), except flow measurements (35.8%) in Italy.

**BPH symptoms and treatment approach**

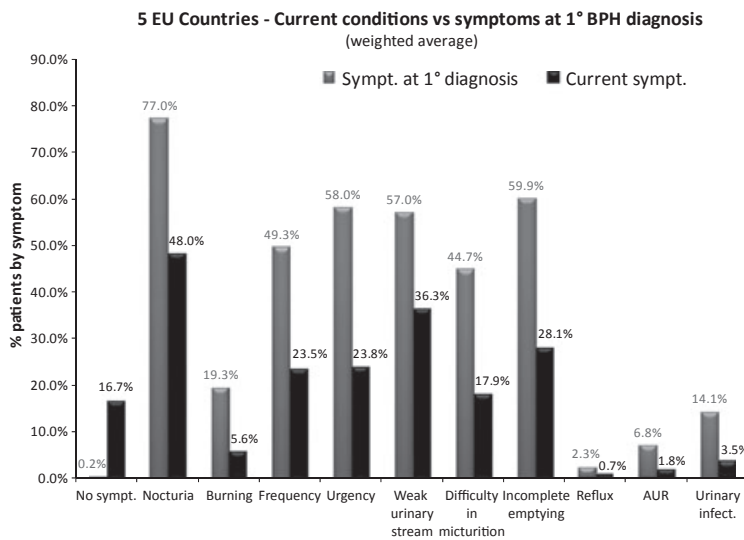
At diagnosis, the most common symptom was nocturia (71%), followed by incomplete emptying (59.9), urgency (58%), weak urinary stream (57%) and frequency (49.3%) (Figure 1). A major difference between countries was recorded in the frequency rate: frequency was the most common symptom in France (higher even than nocturia 79% vs. 71%) whereas its rate was negligible in the UK (15%). Chronic treatment (on average 42 ± 41 months) with alpha<sub>1</sub>-adrenergic receptor antagonists and/or 5-alpha-reductase inhibitors did not solve symptoms in many patients: the rate of asymptomatic patients never exceeded 16%. The most common symptom was still nocturia (48%), followed by weak stream (36.3%), incomplete emptying (28.1%), urgency, frequency (23%) and difficulty initiating micturition (17.9%) (Figure 1). Analysis of the symptoms' pattern showed that the most common combination was the triad nocturia–frequency–feeling of incomplete emptying (22.6%) (Figure 2). The symptoms' pattern was similar in all countries, with slight differences in UK, where frequency was much less common, so that the most common combination in UK was nocturia + feeling of incomplete emptying (38%) and in France, where, on the contrary, the most common combination was nocturia + frequency (32%).



**Figure 2** 5 – EU Proportions of patients reporting nocturia (N), frequency (F) feeling of incomplete emptying (E) alone and combined (weighted average)

The information collected on prostate volume is not reported, because the proportion of cases without this information was high (1st diagnosis: 14.7%–59.3%; current 15.3% - 69.2%). The mean ± SD LUTS severity score was similar in all countries: Italy 2.53 ± 0.89; Spain 2.57 ± 0.93; France 2.68 ± 0.92; 2.73 ± 0.97; Germany 2.86 ± 0.80. The top priority in terms of treatment was the resolution of nocturia, which on average had a score that reflected an important need (3.7–4.1) closely followed by frequency (3.3–3.9) and urgency (3.1–3.4). The least important was intermittence of urinary flow, which had a mean score < 3. Feeling of incomplete emptying was also considered important, with scores just below those related to urgency (2.87–3.60 vs. 3.15–3.49) (Table 2).

When the GPs were asked what was their greatest concern, they reported that the risk of hypotension



**Figure 1** 5 EU countries – current conditions vs. symptoms at 1° BPH diagnosis (weighted average)

**Table 2** Need for treatment by symptom (mean  $\pm$  SD score) (minimal need = 1; maximum need = 5)

Country	Frequency	Nicturia	Incomplete emptying	Difficult initiation	Urgency	Weak stream	Intermittance	Prostatic volume
France	3.9 $\pm$ 1.12	3.78 $\pm$ 1.22	2.87 $\pm$ 1.34	2.95 $\pm$ 1.36	3.15 $\pm$ 1.40	2.7 $\pm$ 1.22	2.28 $\pm$ 1.19	2.55 $\pm$ 1.19
Germany	3.75 $\pm$ 1.00	3.84 $\pm$ 1.04	3.6 $\pm$ 1.10	3.28 $\pm$ 1.19	3.46 $\pm$ 0.97	3.25 $\pm$ 1.06	2.83 $\pm$ 1.17	3.19 $\pm$ 1.20
Italy	3.87 $\pm$ 1.14	4.15 $\pm$ 0.92	3.57 $\pm$ 1.12	3.53 $\pm$ 1.16	3.47 $\pm$ 1.25	3.36 $\pm$ 1.18	2.97 $\pm$ 1.26	3.61 $\pm$ 1.23
Spain	3.63 $\pm$ 0.94	3.94 $\pm$ 0.96	3.3 $\pm$ 1.11	3.45 $\pm$ 1.13	3.49 $\pm$ 1.12	3.41 $\pm$ 1.06	2.81 $\pm$ 1.01	3.03 $\pm$ 1.03
UK	3.34 $\pm$ 1.09	3.92 $\pm$ 0.90	3.13 $\pm$ 1.11	3.1 $\pm$ 1.15	3.25 $\pm$ 1.17	3.17 $\pm$ 1.15	2.59 $\pm$ 1.12	2.45 $\pm$ 1.21

associated with the use of non-selective  $\alpha_1$ -adren-  
 ergic receptor antagonists was their major concern,  
 especially considering the high percentage of patients  
 suffering from concomitant hypertension (and, con-  
 sequently, on antihypertensive drugs). In particular,  
 they feared that patients getting up at night because  
 of nocturia might fall due to orthostatic hypotension.  
 They also mentioned the risk of retrograde ejacula-  
 tion and/or decreased libido, but these side effects  
 were of lesser concern, because they were seen to be  
 reversible and relatively less important in elderly  
 patients, such as those suffering from LUTS, who  
 may already be experiencing these effects regardless  
 of drug treatment.

## Discussion

This survey on LUTS in primary care in Europe has  
 shown that the most common LUTS is nocturia  
 (77% of patients), which is perceived as a major  
 issue associated with the risk of falls that is in need  
 of treatment. The same is true for frequency – which  
 in France was actually the most common symptom  
 (79%). The symptoms pattern analysis revealed that  
 the most common combination appears to be the  
 triad nocturia-frequency-feeling of incomplete emp-  
 tying (22.6%). Patients in the UK seemed to experi-  
 ence frequency, less often than patients in other  
 countries. This may be explained by the larger pro-  
 portion of patients with a recent diagnosis  
 (< 6 months) in the UK (31.4%) as patients may  
 experience fewer symptoms at the beginning of the  
 disorder. Indeed, frequency was most frequent in  
 France, the country with the lowest proportion of  
 patients with a recent diagnosis (6.7%). The hyper-  
 tension and diabetes rates found in this survey are  
 consistent with values reported in the elderly: > 50%  
 people aged 60–69 years have hypertension according  
 to the VII JNC report (6) and on average 17.5% of  
 the elderly, aged 70–75 years have diabetes in Europe  
 (7), except in Germany, where higher rates of both  
 hypertension and diabetes were reported (75.1% and  
 36.7%) and in Spain (diabetes 37.5%). An associa-  
 tion between LUTS and heart disease, diabetes and

hypertension has already been reported in the BACH  
 study (8) and it is consistent with the association  
 that has been found also between LUTS and meta-  
 bolic syndrome (9) and LUTS and vascular risk fac-  
 tors (10). At the moment, it remains unclear  
 whether these associations are because of the fact  
 that all these disorders become more common with  
 age or whether there are other factors linking them.  
 In any case, these findings suggest that the pharma-  
 cological treatment of LUTS should be devoid of  
 effects on the cardiovascular system (11). First line  
 treatment of LUTS are alpha blockers medication.  
 However, when respondents were asked about their  
 main concerns in managing patients with LUTS, they  
 were much more concerned by hypotensive episodes  
 resulting in falls than about other typical side effects  
 of alpha blockers such as ejaculation disorders and  
 lowered libido. This finding was unexpected, as it  
 has been shown that up to three-fourths of men with  
 LUTS have ejaculatory dysfunction (12). Thus,  
 according to our findings, it appears that ejaculation  
 disorders are common, but not bothersome. The sur-  
 vey highlights educational needs in diagnostics.  
 According to current guidelines (11), the minimal  
 diagnostic work-up of LUTS by the GP should  
 include the evaluation of symptoms using the IPSS  
 questionnaire, a digital rectal examination, a fre-  
 quency-volume chart, urinalysis and PSA. Contrary  
 to these recommendations, very few physicians used  
 the IPSS questionnaire (3.2–14.5%) except in Spain  
 (57.1%); other oversights occurred in single coun-  
 tries, such as failure to describe symptoms and per-  
 form the digital rectal examination in Italy (only  
 18% and 20% of the patients underwent these tests  
 respectively) and failure to have urinalyses done in  
 France (only 34% of patients had them done).  
 Unfortunately, GP selection ensured the inclusion of  
 a representative sample from a geographical point of  
 view, but not in terms of age or experience. Thus,  
 it is not possible to exclude that the findings were  
 due to the recruitment of a particular subgroup of  
 GPs, such as young, inexperienced GPs or at the other  
 extreme, older physicians who may give less weight  
 to guidelines. This is a limitation of the survey.

However, the fact that GPs at the two extremes i.e. with less than 3 years or more than 35 years of clinical practice were excluded suggests that this is unlikely. Another reason for the failure to use the IPSS questionnaire is that some physicians do not find it useful for clinical practice: the IPSS investigates seven symptoms, giving the same weight to all of them, in contrast with the recent trend to give more weight to bothersome symptoms. Patients reported nocturia and frequency as the symptoms on the top of the list (mean importance scores: 3.78–4.15 and 3.34–3.90 respectively). Feeling of incomplete emptying was also considered important, with scores just below those related to urgency (2.87–3.60 vs. 3.15–3.49). These findings are consistent with the outcome of surveys conducted in other countries. In a survey (13) performed in 1120 Japanese patients aged over 50 years and diagnosed with BPH, 80% patients reported that nocturia was very bothersome, 62% reported frequency and 59% weak stream. The findings of another survey [14] in Japan that distin-

guished between newly diagnosed patients ( $n = 423$ ) and surgery candidates ( $n = 388$ ) were fairly similar: patients with BPH reported that nocturia, feeling of incomplete emptying and weak stream were the most bothersome symptoms; in addition, frequency was particularly bothersome in newly diagnosed patients and urgency in surgery candidates. In Spain, Hernandez et al. [15] reported that the symptom with the highest prevalence in BPH patients over 60 years of age was nocturia, which was also the most bothersome, as it interfered with sleep. Also the results of the EpiLUTS (1) epidemiological cross-sectional study in the USA, the UK and Sweden in 30,000 respondents were consistent as nocturia, frequency and incomplete emptying were both common and bothersome, as well as weak stream (1). Thus, in view of the frequency, bothersomeness and resistance to current treatment of nocturia, frequency and feeling of incomplete emptying, their resolution is a medical need that will hopefully be met by increased education in diagnostics.

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