

TRAINING SITUATION AMONG GERMAN RESIDENTS IN UROLOGY IN URODYNAMIC DIAGNOSTICS OF BLADDER DYSFUNCTION

Laila Schneidewind¹ (laila.schneidewind@uni-greifswald.de)

Hendrik Borgmann² (borgmannh@gmail.com)

Dirk Piehler¹ (piehlerd@t-online.de)

¹ University Medicine Greifswald, Department of Urology, Greifswald, Germany, ² University Hospital Frankfurt, Department of Urology and Pediatric Urology, Frankfurt/Main, Germany

Corresponding Author: Dr. Laila Schneidewind

University Medicine Greifswald

Department of Urology Sauerbruchstrasse

17475 Greifswald Germany

Email: Laila.schneidewind@uni-greifswald.de

Tel: +49 3834 865979, Fax: +49 3834 865993

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ABSTRACT

Introduction: The training in diagnosis and therapy of bladder dysfunction is an integral part of the German residency programme in urology. Bladder dysfunctions are of increasing importance in our society due to the aging population. The objective of this study was to evaluate the training situation of German residents in urology on bladder dysfunction.

Material and Methods: A 24-item online survey was sent to members of the German Society of Residents in Urology via email. The survey contained questions on demographic data, on hospital setting and expertise and on the personal education level of the resident in diagnosis and therapy of bladder dysfunction.

Results: The response rate was 9.7 %. The training situation among German residents in diagnosis and therapy of bladder dysfunction is heterogenic. Nearly all facilities, 92% of the hospitals, offer cystomanometry and uroflowmetry, as urodynamic testing. In small facilities cystomanometry is performed only once a month. Only 14% of the residents are able to rotate in the sub department of urodynamic diagnostics and treatment of bladder dysfunction. 90.5% of the residents are able to attend external education programmes of this topic.

Conclusion: The training situation for German residents in urology is very heterogenic at different hospitals. Only a small number of residents are able to rotate in the sub department of urodynamic diagnostics. The need for improvement of training in diagnosis and treatment of bladder dysfunction could be met by external education programmes.

Key words: *urodynamics; urinary incontinence; medical education*

1. INTRODUCTION

The training in diagnosis and therapy of bladder dysfunctions is an integral part of the German residency programme in urology. The German Society of Residents in Urology recommends 50 urodynamic tests, like cystomanometry, in the fourth and fifth year of residency [1].

Bladder dysfunctions, especially incontinence, are an increasing problem in our society due to demographic development. Therefore it is important for urological care to train urologists, so they are able to diagnose and treat these diseases correctly [1; 2]. An explorative literature research on PubMed shows that there is no data available about the education of urology residents in this field. Most studies on training in bladder dysfunction derive from departments of obstetrics and gynecology. Adequate training on diagnosis and treatment of bladder dysfunction can lead to excellent results. A study with a teaching module for tension-free vaginal tape (TVT) showed a 94% improvement in performing the surgery due to the special teaching module to learn the procedure [3]. Additionally, another study found that there is no difference in the outcome when transobtoratorian-vaginal tape (TOT) is performed by residents under proper supervision compared to senior surgeons [4].

The objective of our study was to evaluate the training situation of German residents in urology on bladder dysfunction. Secondary aims were to assess the circumstances that residents face during their education in this topic and to find suggestions for improvement of the training.

For our study we defined bladder dysfunction as diseases in which urodynamic diagnostic procedures are used for diagnosis. We also assumed that the

urodynamic testing is necessary for a proper treatment decision. Training situation means the education during residency and the knowledge about this topic as a certified urologist.

2. MATERIAL AND METHODS

2.1 Development of the survey and target population

The survey was designed and conducted according to the reporting guidelines for surveys found on the equator-network.org, an international initiative providing robust reporting guidelines [5; 6].

The first step for the development of the survey was item generation. An explorative literature search on PubMed was done using the terms “training bladder dysfunction”, “training in urinary incontinence” and “medical training urodynamics” in order to identify key topics and questions concerning education in urodynamics.

The survey contained 24 items, which were arranged into 3 subgroups. The first group contained 3 items on demographic questions, the second 9 items about the hospital setting and its expertise in diagnostic and treatment of bladder dysfunction and the third subgroup contained 12 items about the personal education of the resident. Five of all these items were open questions. The items were arranged on 3 pages.

The survey was transferred to an independent online tool on www.surveymonkey.com and was approved by a review board composed of active members of the German Society of Residents in Urology.

The target population were all members of the German Society of Residents in Urology. The email addresses

of the members were collected from the database of the Society. 1170 members were reachable and no sampling was performed.

2.2 Administration of the survey

Before administration the survey was tested for usability and technical functionality by active members of the German Society of Residents in Urology. Afterwards it was sent out to all 1170 members via email containing the web link to the online survey and informed consent about the survey. For the members it was voluntary to fill out the questions and no incentives were offered to them. Answering every question of the survey was not mandatory to complete it. The timeframe for the data collection was 4 weeks.

2.3 Intention to treat analysis

Since the answering of all the questions was not mandatory to complete the survey, all answers were used for an

intention to treat analysis of the whole survey.

2.4 Statistical analysis

Statistical calculations were performed using statistical package for the Social Sciences 22.0 software (SPSS Inc., Chicago, IL, USA).

3. RESULTS

3.1 Response rates and completion rates of the survey

Overall, 113 of 1170 members responded to the survey resulting in a response rate of 9.7%. The completion rates of the single items varied: on the closed items from 46 to 113 answers and on the open items from 4 to 15 answers.

3.2 Demographic characteristics of the population

Table 1 shows the basic characteristics of the survey population.

TABLE I: Demographic characteristics of the 113 survey participants (n=113)

Year of residency (%)		Sex (%)		Employer of the participant (%)	
1	7.2%	Male	47.3%	University hospital (Tertiary Care)	22.3%
2	15.3%	Female	52.7%	Urban hospital (Secondary Care)	47.3%
3	14.4%			Rural Hospital (Primary Care)	29.5%
4	23.4%			Private Practice	0.9%
5	21.6%				
Senior	18.0%				

3.3 Characterisation of the hospital

Nearly every facility, 92% of the hospitals, offers cystomanometry and uroflowmetry, as diagnostic methods for

bladder dysfunction. In small facilities, like rural hospitals, cystomanometry is performed only once a month. Table 2 shows how often diagnostic methods are performed within a month.

TABLE II: Numbers of performed diagnostic tests during one month in departments of survey participants (n=70)

Diagnostic Test	Mean	SD	Range
Uroflowmetry	47.5	64.9	5-300
Cystomanometry	12.0	11.8	1-50
Video-Cystomanometry	4.0	18.1	0-100
EMG	10.0	11.6	0-40
Flow-Pressure-Curves	10.0	10.8	0-40
Urethra-Pressure-Curves	3.0	7.6	0-30

Interestingly, there is a significant difference between university/urban hospitals and rural hospital plus private practice in the number of cystomanometries performed per month ($p < 0,001$, t-test) and video-cystomanometries ($p=0,032$, t-test).

There is no significant difference between these groups in uroflowmetry, EMG, flow-pressure curves and urethra-pressure curves.

Patient subgroups treated in the different hospitals are shown in Table 3.

TABLE III: Percentage of diseases causing urodynamic diagnostic in departments of survey participants (n=62)

Case	Mean	SD	Range
Neuro-urological disease	15.0 %	13.3	0-60
Uro-gynecological disease	30.0 %	19.7	0-80
Recurrent infections	10.0 %	11.4	0-55
Over active bladder	20.0 %	14.8	0-60

The remaining 25 % are other diseases. No subgroup analysis was performed.

The main diagnostic test in bladder function is postsurgical uroflowmetry, which is considered 95% of all urodynamic testing by the residents participating in this survey.

Neuro-urological cases are treated in university hospitals or specialised centers in

90% of the cases; in all cases there is a senior urologist specialised on bladder dysfunction available.

Qualification of persons who are performing diagnostic tests is heterogenic, as shown in Table 4.

TABLE IV: Persons performing urodynamic test according to professional status (n=64)

	Uroflowmetry	Cystomanometry	Flow-Pressure-Curves
Nurse	95.2 %	25.4 %	28.9 %
Resident	7.9 %	66.1 %	62.2 %
Senior Urologist/ Consultant	7.9 %	40.7 %	35.6 %

Tests could have been performed by different professions

3.4 Characteristic of the personal education

Only 14% of the residents are able to rotate in the sub department of bladder dysfunction and urodynamic diagnostics in this survey of German residents. 24.2% of the residents have access to intern education programmes and talks about bladder functional diseases and 90.5% of the residents are able to attend external education programmes on this topic.

3.5. Main findings from the open items

The common answer on the open items was that the resident could not answer all the questions since they have no possibility to gain insight knowledge about this topic or have no knowledge about the sub department at all.

One resident stated that he has no interest in this topic and in his opinion the other residents as well.

Some residents stated that the survey lacks the question of interest in bladder dysfunction and urodynamics.

4. DISCUSSION

We conducted an online survey on the training situation of German residents in urology in diagnosis and treatment of bladder dysfunction. 113 participants completed the 24- item survey. The major finding is that only 14% of the residents are able to rotate in the sub department of bladder dysfunction and urodynamic diagnostic. Another important finding was that in small hospitals urodynamic testing is not often performed, for example one cystomanometry in a month.

To our knowledge this is the first report of the topic in the population of German residents.

In other countries training in urogynecology and incontinence treatment were evaluated in studies, but it seems that there is a need for improvement as well. In an American study population of gynaecologists who recently finished their residency only 54% considered their urogynecological experience acceptable [7]. In contrast the programme directors reported that 77% of the residents could perform independently an incontinence procedure [8]. Despite these different views on the training situation, it is common sense that effective teaching modules could improve training. For example, a study with a teaching module for TVT showed a 94% improvement in performing the surgery due to the special teaching module to learn the procedure [3].

There are some limitations to our study. First, the sample size was small due to a low response rate. We assume that this limitation has not worsened the results. However, we cannot exclude that there is a selection bias in a way that only motivated residents participated in the survey and that the real training situation is even worse. The selection bias might not only be in the negative direction: perhaps those that did not answer were more likely to have access to a training programme and thus felt there is no priority in answering the survey. We also considered to perform a second telephone interview to get a better response rate, but we assume that the bias is even higher since the data in this case were collected from two different sources. Second, the questionnaire was not validated. It was constructed according to the need for questions in this field.

Despite these limitations, we believe that it is necessary to improve the training situation in urodynamic diagnostics especially in Germany. One

main reason for this is the demographic development with the urgent need for diagnosis and treatment of bladder dysfunction and urinary incontinence in elderly patients [1;2].

So we want to raise two questions for discussion. 1. How can we improve the training in diagnosis and treatment of bladder dysfunction, especially in smaller hospitals? And 2. How can we improve the enthusiasm of residents for training in urodynamics?

In our opinion urodynamic diagnostics should be integrated in the daily routine of residents and department conferences so that the resident learns to be aware of the problem, the diseases and the impact of bladder dysfunction on the quality of life. Another solution for improving the training might be clinical visit programmes in external centers. For this reason the German Society of residents in urology offers a programme including clinical visits in neurourological expert centres [9].

Furthermore, structural training programmes should be written according to the practical needs of doctors. The new version of the resident training programme in urology in Germany proposes to perform only 20 diagnostic tests on bladder dysfunction during residency [10]. In our opinion, a sufficient training should include 30 invasive urodynamic tests like cystomanometry, at least 20 medical histories with therapy and outcome of patients with bladder dysfunction and an external course on urodynamic testing. Unfortunately, there are no data, as far as we know, available which indicate an adequate number of diagnostic and therapeutic procedures on bladder dysfunction. It is also a controversial topic, which influence urodynamic procedures on the treatment, especially surgical treatment,

have. We might have to look for different solutions to improve the training and to make this subtopic of urology more attractive.

Therefore we need further representative investigation, not only in Germany, and evaluation of training programmes to improve the situation, find a good training standard and ensure the quality of urological work.

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