

Challenges for a Resident in Urology in Tunisia in 2011

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ABSTRACT

This article presents the actual state of urology and highlights some of the most significant challenges facing resident urological training in Tunisia. These include a specifically limited number of trained urologists, limited training capacity, limited availability of some modern equipment, and non-recognition of subspecialties related to urology. Brief suggestions to overcome these problems are made, and the need for a wholesome review of the economic and health care policies is emphasized.

INTRODUCTION

Surgical specialities, especially urology, have been largely affected by rapid innovation in medical therapies, surgical techniques, local resources, and patient demographics these last years. This impacted the quality of care directly.

The objectives of the residency training should match this evolution. We have to think about our future practice and be prepared for all of these expected changes. There is a constant challenge to the urological education programs to provide the most appropriate, advanced, and comprehensive training in the constantly expanding technologies and techniques [1].

Herein, we examine the quality and the effectiveness of the current urological training in Tunisia and if it is appropriate to our current and long-term urological realities.

UROLOGY IS CHANGING!

Across the world, the specialty of urology is in constant evolution [2]. Much of these changes have been the result of improved technology. Many of the traditional surgical and even endoscopic approaches are now largely obsolete.

The new generations of extracorporeal lithotriptors have already revolutionized the therapy of urinary tract stones. Lasers are in their infancy, but it will influence the practice of urology in the management of neoplasms and the management of calculi. Many urologic operations that have been done by open surgery are performed by laparoscopy. The development of new chemotherapeutic agents and advances in radiological imaging of the urinary tract are improving our practice.

Skills and experiences using all these techniques will undoubtedly be an important part of urologic practice in the future. Emerging and developing techniques are becoming

KEYWORDS: Urology; Training; Residency; Education; Clinical competence; Motivation; Evaluation; Curriculum; Medical; Surgery; Endourology; Endoscopy; Laparoscopy

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more difficult to attend but mandatory [3]. This requires young urologists to be actively involved in continuing education.

WHY HAVE WE CHOSEN UROLOGY?

Urologists are, first and foremost, surgeons and clinicians. It is still an extremely selective specialty [4]. Urologists are increasingly valued and in growing demand in society today. In Tunisia and the rest of the Arab countries, people are becoming increasingly aware of the importance of preventing urological pathology, and new treatments for previously incurable urological diseases are becoming available.

Many authors had investigated why some medical students select urology as a career. The top 4 reasons for students in the UK to select urology as a career included (1) inspirational role models, (2) exposure to urology as a house officer, (3) a variety of open and endoscopic urological procedures, and (4) the quiet on-calls and sociable lifestyle [5]. In a similar survey in the USA, investigators point to the importance of the mix of medicine and surgery in this speciality, the diversity of urological procedures, and clinical exposure to the field as the most common citations [6].

DEMOGRAPHY OF TUNISIA

Tunisia is a North-African country with an estimated population of 10 million people of various sociocultural ethnic groups (Arab, Berber, European, and black) [7]. The health program of the country is based on a national health policy and strategy, which aims at achieving health for all Tunisians. This policy identifies 3 levels (primary, secondary, and tertiary) for the provision of health care. Tertiary health institutions are responsible for the training of medical students and residents and for carrying out research [8]. Tunisia has 4 medical universities with, all together, 14 university hospitals [8]. The doctor-to-population ratio in Tunisia is about 1:1000, but the majority of these doctors are located in the urban regions [8].

UROLOGY IN TUNISIA

In Tunisia, the specialty of urology was founded in the sixties by Pr. Zmerli who is one of the pioneers of urology in the Maghreb, Arab, and African countries. The specialty of urology in Tunisia, an entity now distinct from general surgery, is less than 50 years old. The first independent department of urology in Tunisia was founded at Charles Nicolle's Hospital, Tunis, in 1961 to 1962 with Pr. Zmerli as chair [9]. Over the next few

years, additional independent centers were established in Sfax, Sousse, Monastir, and Kairouan. Currently there are 7 urology training centers in Tunisia.

On 6 June 1986, the first kidney transplantation was performed, and over 3 years, 60 kidney transplantations were performed [9]. The Tunisian Urological Society (TUS) was founded in 1991.

As of September 2010, there are 207 trained and registered urologists in Tunisia [8, 10], serving a population of 10 million (i.e., a ratio of 1: 48.300). Ten of them had already become neo-specialists.

(A) Medical study in Tunisia

In order to be granted a residency in urology in Tunisia, the candidate must fulfil several criteria. First of all, he or she must have a medical diploma that is recognized in Tunisia. In Tunisia, medical studies take 5 years. In addition, the candidate must have an internship certificate or an equivalent of the same training abroad.

The internship consists of a training rotation in general surgery, internal medicine, paediatrics, obstetrics-gynaecology, and 2 other chosen favorite disciplines. It takes 24 months. At the end of these 2 years, students finish medical school by passing a final exam, the "Examen clinique."

After that, the majority of medical doctors take a competitive state exam to be admitted to postgraduate specialist training. This exam is scheduled each year in September and concurrently at the Faculty of Medicine in Tunis. This examination covers all subjects and consists of hundreds of multiple-choice questions and cases. After success, candidates are offered residency posts according to their examination marks and personal preferences. The number of residency posts in each specialty is defined by the government. Each year, around 5 to 7 new residents enter urological training in Tunisia. Residency is considered as part of educational studies in Tunisia and is funded by the government.

When a resident is accepted for further urological training, the Ministry of Health lists him or her in a special registry that tracks all achievements until the eventual certification as urologist.

(B) The training program for Tunisian urological residents

Historically, surgical training in Tunisia has followed the Halstedian tradition of an apprenticeship. The trainee starts with an internship and continues through residency training with increasing responsibility until the trainee should have

almost the same abilities as the teacher. However, this system is characterized by long hours with poorly defined goals and haphazard, random experiences that depend on patient flow and disease presentation [11].

(a) General characteristics

In Tunisia, training in urology begins immediately after an internship as in Belarus, Norway, Germany, Italy, Romania, and the Ukraine. It starts after a preresidency in Denmark and the Netherlands, and after "common trunk" general surgery residency in Finland, France, Greece, and the UK [12]. In Tunisia, as with the majority of European countries, general surgery training is incorporated within the framework of a urology residency program [12]. Italy, Estonia, and the Ukraine remain the only 3 European countries where residents spend no time in general surgery [12].

The average time spent in general surgery training in European countries is longer than the Tunisian model and lasts 16.2 months [12]. Furthermore, it is longer in India and takes 3 years [13].

All training in Tunisia lasts for 4 years and comprises a 2-stage approach: the first stage consists of general surgical (visceral surgery, paediatric surgery, or any other surgical speciality) education (12 months as in the USA), preferably during the first year of residency, and the second phase (2 to 3 years) concerns, specifically, urological education. Moreover, residents are strongly advised to spend 6 months in gynaecology and 6 months in nephrology.

(b) Curriculum and clinical experiences: goals and objectives

Our residency program is designed to provide the maximum educational experience in operative, procedural, and office urology. It is based on gradually acquiring knowledge and further responsibilities under the supervision of a tutor and senior staff at the training site. The goal of the urological training program is to produce a reasonably well-trained general urologist who has a broad understanding of most common urological conditions relative to Tunisia and an ability to perform correctly the majority of common urological procedures.

The training involves patient care, assisting in the operation theater, performing all possible diagnostic procedures, work in the outpatient ward, night shifts, and scientific writing. Patient rounds are made daily, and grand rounds are held

twice weekly, during which residents present their patients and discuss pathologies. In each training center there are educational conferences in the form of clinical presentations, lectures, reviews of recent literature, discussions of research projects, and pathology reviews.

Regular 1-day courses taken within the "collège d'Urologie" is assumed to provide continuous and adequate training. To this can be added the training provided by the educational courses of European School of Urology (ESU) in Tunisia, the annual meeting of the TUS, and the annual meeting of the Tunisian Society for Research on Sexuality and Impotence (STRSI), the Tunisian Association of Surgery (ATC), the Tunisian Association of Paediatric Surgery (ATCP), and the Tunisian Laparoscopic Surgery Society (STCL).

All residents should attend these courses and national meetings, conferences, seminars, and so forth. They give residents the opportunity to listen and learn from the experiences of colleagues and experts and to develop their own work. Moreover, residents (especially chief residents) are strongly encouraged to attend international meetings and conferences.

In Tunisia, all urologists and all residents-in-training are members of TUS and are encouraged to be members of international urological associations, including the French Association of Urology (AFU), the European Association of Urology (EAU), the Société Internationale d'Urologie (SIU), and even the American Urological Association (AUA).

Our web page—www.urotunisia.com—was launched several years ago and has already proven to be a very useful source of information for Tunisian residents and urologists.

(c) Curriculum and clinical experiences: timing

Establishing the foundation of urological practice is really a complex process, during which we are learning a lot of data. In general, urological training aims to provide the acquisition of improved uro-diagnostic capability; a better understanding of urogenital pathophysiology and uro-pharmacology; endourological skill; the improvement of pelvic, perineal, and retroperitoneal surgical skill; exposure to newer technological advances; renal replacement therapy options; and the surgical treatment of localized urological malignancies [1]. All of these competences should be attended gradually during residency.

General surgery training

As said by Pr. Zmerli: "Give me a brave surgeon, I will give you an excellent urologist."

Urology residents are required to spend 1 year in a department of general surgery (almost the first year). During this year, residents must demonstrate competence in history taking, physical examination, and the appropriate utilization of adjunctive laboratory tests in different pathologies necessitating surgical treatment. With this prior general surgical training, the urological trainee will be comfortable with abdominal anatomy and handling of the bowel, performing simple inguinal surgeries, and may have basic laparoscopic surgical skills [1].

First year of urology training

The main objective of this year is the development of a solid infrastructure necessary to become an excellent urologist. The resident has to improve his or her knowledge concerning basic urology anatomy, physiology, and the pathophysiology of urologic diseases. Residents must learn the indications for surgical interventions, the various endoscopic techniques, and the studies needed to determine the aetiology of the disease. The urology resident will gain expertise in urology history taking and physical examination. Moreover, residents will gain confidence and skill, and they will demonstrate competence in all office-based urologic procedures, including cystoscopy, transrectal ultrasound (with and without biopsy), and extracorporeal shock wave lithotripsy (ESWL).

Second year of urology training

At the beginning of this year, residents will start their first steps in the evaluation and management of patients. They participate in the care of these patients when surgery or hospitalization is necessary. Moreover, they will handle the consultative services and improve their capacity in following the management and treatment of their patients. By the end of the second year, residents are expected to demonstrate competence in understanding the physiologic basis for urologic disease, basic endoscopic skills, and basic operative skills.

Third year of urology training

During the chief year, the resident gains greater surgical skills and clinical acumen. He will demonstrate competence in the management of all urologic entities, particularly with voiding dysfunction, calculus disease, urethra stricture, oncology

(especially bladder, prostate, and renal cancers), infertility, and impotence. Surgical competence in open and endoscopic surgery must be demonstrated. He or she should also demonstrate competence in the management of some local urologic entities specific to the Maghreb, including fistula between the bladder and the vagina arising after obstetrical manoeuvres, urinary tuberculosis, renal hydatid cysts, and penial fracture [9].

To attend all these goals in time, which is a real challenge, residents have exposure to the operating room and act as primary surgeons on a large number of cases. Each of these activities prepares the resident to enter the profession of urology.

The urology residency experience is reinforced with rotations at many hospitals. The number of institutions the resident must rotate through does not affect the duration of training.

In Denmark, the Netherlands, and in Tunisia, at least 2 institutions are required. In France and the UK, training in more than 2 hospitals is mandatory. In other countries (Bulgaria, Finland, Germany, Greece, Italy, Norway, Romania, and the Ukraine), residents may do all of their training at just 1 hospital [12]. Larre and colleagues had found that residents carrying out their residency in different urology departments performed better than those trained in a single department [14].

(d) La Rabta department of urology as a model

A golden rule is always respected in our center: "Junior residents work closely with the chief residents." They have the opportunity to participate in almost all activities.

General urology/endourology: Residents perform a large number of open surgeries, including prostatectomy, nephrectomy, all types of open lithotomy, and pyeloplasty.

They diagnose and treat common urologic conditions such as urolithiasis, BPH, carcinoma of the bladder, prostate carcinoma, and scrotal conditions, such as hydroceles. They currently perform cystoscopy, transurethral incision of the prostate (TUIP), transurethral resection of the prostate (TURP), and small bladder tumors. They actively participate with many cases of ESWL, percutaneous nephrolithotomy, and rigid ureteroscopy.

Laser TURP, and transurethral destruction of prostate tissue by radiofrequency thermotherapy are not available, nor is flexible ureteroscopy. I should like to mention the large number of endourological procedures carried out by the department.

Table 1. Surgical procedures included in each group [14, 15].

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| Minor open surgery | Major open surgery | Endourology | Laparoscopy |
|-------------------------------|--|--|-----------------------|
| <u>Simple nephrectomy</u> | Radical nephrectomy | <u>Transurethral resection of prostate</u> | Radical nephrectomy |
| Bladder augmentation | Partial nephrectomy | <u>Transurethral resection of bladder tumour</u> | Radical prostatectomy |
| <u>Prostatic adenomectomy</u> | Nephroureterectomy | <u>Rigid ureteroscopy</u> | Sacrocolpopexy |
| TVT, TOTa | Radical prostatectomy | Flexible ureteroscopy | Varicocelectomy |
| Sacrocolpopexy | Cystoprostatectomy/bricker | Percutaneous nephrostomy | |
| Colpoperineorrhaphy | Cystoprostatectomy/orthotopic neobladder | <u>Extracorporeal lithotripsy</u> | |
| Vasectomy | Adrenalectomy | | |
| Nesbit procedure | Kidney transplant | | |
| <u>Circumcision</u> | Donor nephrectomy | | |
| <u>Varicocelectomy</u> | (cadaver/living donor) | | |
| <u>Pyeloplasty</u> | | | |

Oncology/minimally invasive uro-oncology: The service manages a large volume of routine and complex urologic oncology cases, including endoscopic resection, radical prostatectomy, radical cystectomy with various types of urinary diversion, and surgery for renal tumors, including nephron-sparing surgery and radical nephrectomy.

Neurourology and reconstructive surgery: A wide variety of surgical procedures for the treatment of urinary incontinence and voiding dysfunction are performed in this service, including sling procedures, fistula management, and reconstructive surgery.

Male infertility and infectious disease: Residents learn the diagnosis and treatment techniques for these patients and gain operative experience in general open and endoscopic procedures.

Paediatrics: We did not have paediatric urology department until now, so we have a little experience with paediatric urological problems.

Radio-diagnostic: Residents in urology independently perform abdominal and endorectal ultrasounds, which are evaluated by senior doctors.

In the Tunisian urological training program, the requirements for the theoretical training are well defined although there are no exact numbers on how many surgical procedures have to be

performed by the resident (under the constant supervision of experienced medical staff).

This is a simplified list of activities residents in Tunisia have to be able to perform:

- ✓ Physical Examination
- ✓ Cystoscopy
- ✓ Ureteroscopy
- ✓ Prostate biopsies
- ✓ Kidney surgery
- ✓ Ureter and pelvis surgery
- ✓ Bladder surgery
- ✓ Prostate surgery
- ✓ Testis surgery
- ✓ Penis/scrotum surgery
- ✓ Prevention and management of complications of urology surgery
- ✓ ESWL indications and follow-ups

With regard to urologic emergency procedures required, the treatment of urosepsis, hematuria, obstructive anuria, genitourinary trauma, urinary retention, testicular torsion, and priapism are the usual conditions that should fall into the program of a trained urologist. It does not create any problems for our residents.

Table 1 resumes the surgical procedures (underlined) that a Tunisian resident should be able to do at the end of his or her training.

Most residents believe that laparoscopic renal and adrenal surgery are the gold standard, but they are less certain regarding the future value of laparoscopic/robotic prostatectomy [16].

The strength of our urology program lies in the diversity of our interests and the large variety of clinical opportunities. The ease of access to the operative room in Tunisian departments remains a very important attraction for young urologists, as in other countries [17, 18].

Although our residency program is designed to provide a varied experience in patient care, teaching, and research addressing the full range of male and female genitourinary conditions, many "routine" items are not available for resident, including renal transplantation, microsurgery, reconstructive surgery, paediatric urology, urodynamics, laparoscopic surgery, and andrology.

(e) Teaching and self-education

Grand rounds, attending rounds, and chief rounds are among the weekly departmental conferences. Residents also routinely attend special programs of the liege center in Belgium and the Mansoura center in Egypt. They are encouraged to attend national and international meetings, they are encouraged to present research papers at national meetings, and they are supported and funded for their activities. In Tunisia, residents are strongly advised to attend theoretical courses but they are not mandatory. In other countries (Belgium, Georgia, Germany, Greece, Portugal, Romania, and Turkey), residents do not need to attend any theoretical or practical courses [12].

(f) Research opportunities

The department of urology encourages both clinical and basic science research (urologic oncology, medical therapy for BPH, etc.). Unfortunately, Tunisian residents do not have the opportunity to participate in any of the department's research efforts.

(g) Examination

In most European countries (Belgium, Croatia, the Czech Republic, France, Italy, Latvia, the Netherlands, Poland, Turkey, the Ukraine, and the UK), residents have to pass examinations to be able to continue their residency [12]. We do not have the same system in Tunisia and residents pass automatically after judgment of the head department. In case of an unfavorable view, he or she has to repeat the half-period of training in the same center.

In Tunisia, after 4 years of training, the resident must pass a final theoretical exam to receive a certificate of completion of urological training. Minimum requirements are as follows:

- ✓ **Obligatory training in urology:** at least 24 months of training at accredited urological centers.
- ✓ **Obligatory training in other specialties:** 6 to 12 months in a surgical department, 6 months in a nephrology center, and 6 months in a department of the resident's choice (gynaecology, oncology, etc.).
- ✓ **Prerequisites to be admitted to the final exams:** The applicant will document the application for the examination with data about his medical and educational research, schooling activities, completion of obligatory training and all educational activities, and confirmation of active participation in scientific conferences and scientific publications.

In Tunisia, one must apply for the license of urologist in order to have the right to practise. The license will be issued by the competent authority upon presentation of the certificate of urological training. A urology license issued in Tunisia is recognized in other EU countries.

It is definitive and we are not obliged to attend any training activities, as in other countries.

One more thing we do not have in Tunisia is postgraduate education in urology, so there is no further subspecialization in the urological field, as in France or the USA.

(h) Resident's book

The establishment of the internal book is already a reality in the vast majority (67% to 74%) of European countries [12]. Up until now, in Tunisia, we do not have an official "resident's book" or journal that is used to evaluate residents in all medical fields. In some countries (Germany, Greece, Poland, Portugal, and Sweden), logbooks are not used [12].

Larre and colleagues found that a supporting senior surgeon and the use of a logbook were associated with better technical performance [14].

(i) Financial data

Urological residents work about 45 hours per week and receive a base salary of approximately 400 to 500 euros (540 to 675 dollars) per month, depending on the number of years they have been in training. Any additional medical activities, besides the hospital job, in order to compliment one's salary are not

permitted. In general, the average urologist from Tunisia will finish his studies and can start work as a doctor at age 30.

However, despite all of these problems, the Tunisian urological residents are full of optimism and hope for early improvement.

OUR POINT OF WEAKNESS

Overall, urology training in Tunisia has been reasonable over the years. Most trainees in our system have a vast fund of theoretical knowledge, although the practical surgical training has not been of the same standard. Trainees from the Tunisian system have done well, both in Tunisia and in Europe. The formal training system needs to be revamped to provide better technical training in rapidly changing urological practice scenarios across the world.

Multiple factors have contributed to the changing dynamics of urology resident education, including the development of contemporary educational mandates as well as changes in the human and technological resources necessary to sustain a urology training program [19].

Although urology is classified as a surgical specialty, knowledge of internal medicine, paediatrics, gynaecology, and other specialties is required by the urologist because of the wide variety of clinical problems encountered.

The question is: "What are the gaps in urology training in Tunisia?"

First of all, no training system is perfect and each has its own pros and cons. Some potential areas of weakness in the Tunisian system of urological training are listed below.

(A) Duration of training

The current 3-year urology residency may not provide the right foundation in these changing times [13]. According to the actual system, the trainee should learn all urology within a period of 3 years only. While this may be enough for academic learning, the vast majority of trainees do not get sufficient operating experience in this short time. This is true even for "simple" procedures, such as the transurethral resection of prostate/bladder tumors. The resident training period in Tunisia has not as yet been increased from 4 to 5 or 6 years. This raises a number of doubts and problems in regard to medical residents acquiring suitable training in all areas of urology.

(B) Lack of structured and standardized training curriculum

In Tunisia, most training centers lack a structured training curriculum. Most trainees (and trainers) do not have a clear idea of what skills they are expected to acquire on a semester-to-semester basis. Additionally, each center may have a different focus in urology. As a result, trainees from different centers complete the training with varying levels of skills and knowledge. A good training program will provide exposure to complex and rare procedures despite the fact that many of them would not be performing such procedures in their clinical practice [1]. In the USA, Canada, Europe, and Israel, the curriculum is structured with specific training objectives for each year.

I believe it may be worth considering the development of a new approach in surgical education for our residents in the form of a core surgical curriculum for all training programs. This curriculum would be based on didactic and hands-on surgical laboratory teaching with adjunctive use of virtual surgical tools and Internet technologies. Through such a curriculum, residents would obtain an early understanding of the principles and techniques of surgery (open, laparoscopic, and endoscopic). They could then proceed to surgical training in specific types of procedures [3]. Additionally, teaching rounds, case discussions, and symposia presentations usually complete the academic input requirements [1].

(C) Cultural barrier

As an independent speciality, urology is still avoided by female students. It is considered a male speciality. In all of Tunisia, there is only 1 female senior urologist and, unfortunately, no residents at all.

(D) Lack of experimentation

Many teachers, themselves, are still learning. As a result, they may not be in the best position to teach others. The experienced senior urologists may not have enough experience to guide a junior trainee through a procedure such as PCNL or laparoscopic procedures.

(E) Laparoscopy

In Tunisia, the detachment of urology from "mother" general surgery is relatively recent. In many hospitals, the urologist practices under a surgeon chief. In such conditions, where

general surgeons monopolize new procedures, especially laparoscopy, urologists will never obtain sufficient training and experience to perform with excellence. On the other hand, since hospitals belonging to the public health system do not provide laparoscopic treatment, trainees have little to no opportunity to learn and practice laparoscopic urology.

(F) Subspecialties

Constant improvements in andrology, female urology, paediatric urology, neurourology, and even current urological conditions (BPH, incontinence, and impotence) have made them distinct subspecialties [20]. It is almost impossible for an individual to have a depth of understanding of each of these subspecialties. This rapid explosion of urological knowledge and skills in the field of uro-diagnosis, therapeutic options, and surgical advancements cannot be effectively taught to the urological trainee's tract [1], resulting in the advent and growth of new subspecialties [2] and a greater amount of time required to train urologists in these skills [13].

In almost all countries, at the completion of the residency program, residents have an option of a variety of subspecialty training fellowships; it's not the same in Tunisia.

While subspecialties may be beneficial in selected institutions, most urologists in peripheral centers who cater to the majority of the Tunisian population need to be well versed in general urological skills covering a wide array of these new subspecialties.

(G) Financial support

The application of new urological technology certainly requires time and patience, but it also demands financing. Economic issues are very important and often the main limiting factor.

Availability of a method is also decisive for the selection of a treatment [21]. Many new therapeutic technologies (laser, brachytherapy, robotic surgery, etc.) are still unavailable because of their prices.

(H) Research: the neglected component

Clinical/basic science research is a vital component of a residency training program. Not only does it enrich the individual during training, but it also ensures growth and development of our specialty in the future. Progress in the field of urology depends on persistent efforts in research and progress [22]. Research appears to be a low priority/absent in our resident

training program. Residents are not allowed to participate in these programs, clinical research, or in basic science projects. Moreover, there is no protected research time for residents. The present efforts in research and development are hampered principally because few bright residents are involved in research.

According to a Medline search performed on September 30 2010, there were a total of only 14 Tunisian manuscripts published in the *Journal of Urology*, *BJU International*, *Urology*, and *European Urology* during the past 10 years. This is indeed more than paltry as compared to 235 publications from Egypt, 237 publications from Israel, 397 publications from France, and more than 6899 publications from institutions in the USA in these journals during the same time period. The reasons for this vast gap includes a general lack of time and facilities for urological research in Tunisia and other developing countries.

The new 5-year program with more research facilities would provide a greater opportunity to perform high-quality research during the training period by ensuring a more rational time allocation to this aspect of residency training, resulting in an increase in the number of urological publications coming out of Tunisian academic institutions [13].

(I) Lack of epidemiologic data

It's a logical result of a lack of clinical research in our country.

(J) Resident society

One of the main problems facing the Tunisian urological residents is the absence of their own society and their own meetings, as in European countries.

(K) Lack of practical skills

A second problem is the lack of opportunities to acquire practical skills. First, in large university centers, it is common that the majority of operations are performed by older, experienced surgeons. Second is the heavy workload residents face at their workplace and the lack of time to enter into continuous education programs.

It is not only in Tunisia that a large number of residents, even in leading institutions, report a deficiency of practical operating experience in our urology residency programs. This lack of proper practical training is distressing. Duchene et al. discovered that only 38% of US urology residents felt that their laparoscopic experience was at least average or acceptable [23]. This is so different from our actual reality but reflects a general problem.

PROPOSITION

Training urologic students represents the most important challenges for the academic urologist today. There has been recent interest in revising urology residency training as shown by the increase of publications dealing with this subject. Medical educationists believe that apart from a technical/professional competency, all physicians should possess 6 core competencies: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice [1]. Any revisions should consider these fields.

Training in the Urology Residency Program is expected to provide residents with an excellent background in all aspects of adult and paediatric urology, as well as a foundation in research and academic urology, which will later give them the ability to pursue private practice, a fellowship, or academic urology. What should we do to attend these objectives?

The foundation of a comity to update and educate Tunisian urologists would be a solution.

This comity will introduce and improve uro-technology, including minimally invasive treatments for BPH, the latest technologies for the endo-urological treatment of urolithiasis, innovative approaches for the treatment of cancers (brachytherapy, cryotherapy, HIFU, photodynamic therapy), advances in imaging to improve diagnosis, and the staging of tumors and urological laparoscopy [21]. An important step in the accomplishment of this objective is the assessment of the present practice and future needs.

Urology trainees in Tunisia are faced with serious challenges. At least 4 considerations should be kept in mind when developing our educational model:

- ✓ First, they need to be trained primarily to become good general urologists.
- ✓ Second, a certain percentage of trainees exiting the residency program need to acquire subspecialist training so that the highest quality specialist care could be provided to those patients who need such care. The role of the general urologist would be channeling patients to the appropriate specialist.
- ✓ The economic considerations of urology practice in Tunisia are different from those of western medical systems, which are driven by free market principles. Cost benefit analyses are very important in our country with very limited resources.

- ✓ Clearly, surgical volume is needed to provide good surgical experience in educating residents in surgical techniques. However, something more structured and fundamental may be needed to create a basis of training with greater consistency and provide an educational experience that is more cohesive and standardized for each trainee to become surgically qualified [3].

I would like to suggest the following to stimulate debate so that the most appropriate program could be put in place for urologic training in Tunisia. Some of these views have been previously reported [13]. Such programs could be an example for other Maghreb, Arab, and African countries that have similar economic, educational, and health conditions.

There are more than valid reasons for urology training to be extended. It is true that this option will be poorly viewed by many, given the precarious financial and employment conditions of medical residents. We point to the importance of fifth-year residents to improve their technicality, conduct research, and publish articles so as to fill gaps in their curriculum vitae. Five-year training seems to be adequate. The first 2 years should be devoted to general surgery (obligation of one year) and other relevant specialties (nephrology, vascular surgery, gynaecology, oncology, etc.). There is no doubt that a solid foundation in general surgery is essential for specialization in any surgical branch, but how long should be the period of surgical training? An intensive 1-year general surgery rotation would be good enough to develop the basics and then build on it to make a comprehensively trained general urological surgeon [13]. The next 3 years should be devoted to core urology.

Repartition of different activities along the urology training period of 4 years will be deeply discussed between the STU, the comity of urology training, head departments of all urologic departments, and medical universities.

We should define strict goals for every 6 months of training, assess if they were achieved, and define remedial measures that must be taken if they were not attended.

A 6-month or yearly trainee evaluation of trainers (practical and theoretical knowledge) should be an integral part of the residency program, and definitions of measures to take in case of repeated negative reports.

More attention must be given to poorly known pathology, such as overactive bladder, erectile dysfunction, pelvic pain syndrome, and so forth.

Surgical training must now incorporate both open and minimally invasive approaches for the same disease. This demands more patience and time on both the educator and the student. Both must maximize every opportunity for teaching and training [24]. An intensive, short, "hands-on" laboratory curriculum for residents for improving skills in laparoscopy, endourology, minimally invasive therapies, and robotic techniques should be carefully considered [25, 26].

Resident participation in the operating room may be improved by viewing the surgical-generic and procedure-specific videos through a centralized Internet library as part of the core curriculum. Use of this Internet library would compliment additional educational experiences with virtual surgery technologies and hands-on use of animal models in learning fundamental surgical techniques specific to urology [27]. High-level training as the robot-assisted laparoscopic prostatectomy and robot-assisted laparoscopic partial nephrectomy are not actually in our immediate aims.

Greater monitored operative supervision is mandatory.

The standardization of a broad-based national training curriculum for all urology programs should be implemented. Each program must satisfy the minimum criteria and should provide training in all relevant disciplines. If certain programs do not fulfill the requisite criteria, they should not be accredited by the comity of urology training [3].

Propose an adequate Tunisian logbook for our conditions and epidemiologic data. The acquisition of practical skills needs to cover more than the simple listing in a logbook of the procedures that have to be performed. The assessment of how competently the trainee carries out these procedures has to be mandatory, and whether this is always done under supervision or alone, and whether the trainee can manage or not manage the common complications of these procedures will also need recording [28].

All urology training programs should be under the aegis of the "TSU." By creating this curriculum, which will become available to all TSU members on the TSU website, these programs can provide guidelines to residents for materials that are required learning during their training, as well as providing new information and guidelines for practicing urologists.

Define a minimum research/publication output per resident per year beginning in the second core urology year.

At the end of the training, after successful completion of the exit examination, residents would have the option and are encouraged to pursue a 1- to 2-year fellowship program in various subspecialties at designated centers of excellence and appropriate to our service demand. Therefore, through review of practice guidelines, statistical data, and other evidence-based references, they can identify and focus on areas that present themselves as knowledge or skill gaps, and concentrate their efforts to master specific learning challenges.

Continuing medical education programs and the introduction of "mini-fellowships" [28] for practicing urologists can further improve their technicality, as well as update the practice of urology [1].

Similar to other countries and societies (AUA and EAU), we have to create our one educational teaching platform to allow residents and other membership the opportunity to choose the learning method that best suits the individual, including traditional didactic sessions, enduring materials available in various formats, and hands-on educational courses. Of the surveyed urologists, 92.8%, 89.6%, and 94.9% were interested in hands-on courses, simulators, and live surgery, respectively [21].

In our model, opportunities to enhance skills should be available in a variety of topic areas, including female pelvic surgery, laparoscopic training and office urodynamics, and even robotic surgery and percutaneous tissue ablative therapies.

Finally, we would like to conclude by saying that our attention will definitely focus on building a bridge between Tunisian residents and all international colleagues, especially European and American through the EAU and the AUA. Such collaboration should greatly benefit all.

I should probably apologize for being so optimistic, but the future would appear to be even more promising. Future developments in urology will undoubtedly lead to exciting progress in urology and we should participate in this progress.

CONCLUSION

Overall, urology training in Tunisia has been reasonable over the years. Actually, a lot of change and improvement must be done to keep, improve, and excel in our quality of care and management.

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