Original Article

Has the Creation of a Urology residency Programme Translated in to more Surgical Exposure for Final Year Residents?

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ABSTRACT
BACKGROUND: Surgical residency programmes are supposed to enhance resident operative experience. The impact of urology residency was assessed at our institution before and after establishing a structured urology training programme in 2006.
MATERIALS /METHODS: Log books of final year Urological residents presented for the West African College of Surgeons (WACS) and National Postgraduate Medical College (NPMC) final part II exams from January 2007 to December 2011 at Jos University Teaching Hospital (JUTH) were reviewed. All residents had completed mandatory 3 years of urology training. The records of surgeries performed by residents were extracted. These surgeries were categorized as Endoscopic procedures, open kidney / ureter surgeries, open bladder surgeries, open prostate surgeries, open urethral and open testicular / penile sugeries. The records were compared with records of operated cases in the same category before the commencement of Urology residency training from January 2001 to December 2005. Results were presented as tables and charts. The Students unpaired t -test was used to assess significance. P value of < 0.05 was taken as significant.
RESULTS: There was an overall increase in absolute number of operative cases performed by final year residents in the period after the commencement of the Urology residency programme (n=596) compared to the period before the training began (n=381) this however, was not statistically significant (p=0.3). There was a decline in endoscopic surgeries done by residents after the training begun compared to the era before the training .
CONCLUSION : Whereas creation of the urology training programme in JUTH has resulted in more operative cases done by trainee urologists, the exposure to endoscopic surgeries has declined . This will not augur well for the training programme in the long run. Periodic review of the data should be performed to maintain consistent, positive experiences for residency training.
KEY WORDS: Residency training, Urology training, Postgraduate Medical Education.

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BACKGROUND

Surgical residency programmes are supposed to enhance residents' operative experience. The goal of residency training is to produce an expert in a focused surgical area. In addition, surgeons are trained to become leaders in the fields of clinical medicine, research and education[1]. It is these surgeons who play an important role in teaching future medical students, residents and allied health professionals. Surgical training in Nigeria is under the auspices of the West African College of Surgeons (WACS) or the National Postgraduate Medical College (NPMC). Urology as other subspecialties of surgery evolved from general surgery. Since inception Urological training in Nigeria in its present structure has undergone little change. Based on a modified Halstedian system, it requires a broad general surgical experience as a prerequisite for entry. Young urologists are trained through a system of graded apprenticeship, involving increasing responsibility every year, and safely acquire over 3 years, the necessary knowledge and skills.

The competence of a surgery specialist must to a large extent be judged by his/her operative skills which are directly linked to the extent of surgical exposure acquired during the residency training. The goal is that competency is achieved when the trainee could perform the procedure independently or in the opinion of their teachers they could be independent [2]. There is so much to teach and there are increasing limitations of time and opportunity, and this has brought about a growing concern about the expertise of the residents, after completing the residency program [3].

Structured Urology training commenced in our centre in January 2006. The present study was designed to test the hypothesis of whether the urology residency curriculum as it stands ensures adequate operative skill acquisition by trainee urologists, in our centre. Since the final year trainees are at the end of a "conveyor belt" having gone through a certified training. The log books presented at the final exams of the West African College of Surgeons and National Postgraduate Medical College were assessed.

MATERIALS AND METHODS

Available logbooks of final year Urology residents presented for the final part II exams in the West African College of Surgeons and National Post graduate Medical College in our centre from January 2007 to December 2011 were assessed with regards to the number of cases performed. This was compared with the number of cases performed by final year residents rotating through the urology unit before the commencement of the urology residency from January 2001 to December 2005. Cases where residents only assisted were not included. Data

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was analysed using Microsoft Excel version 2007 and presented as charts and tables. The 2- tailed unpaired Students' t- test was used to test for significance. P<0.05 was taken as significant.

RESULTS

There was a 53.2% overall increase in number of operative cases performed by final year residents in the period after the commencement of the Urology residency programme (n=596) compared to the period before the training began (n=389). There was a statistically significant increase in open upper urinary tract surgeries done by residents in the era after the commencement of urology training (Figure 1,Table 1) p= 0.0025. Whereas there were no urethral surgeries performed by residents prior to commencement of the training, 113 urethral surgeries were done by residents in the period following the start of the training (Figure 1).

There was however a 47.4% (p=0.075) decline in endourological procedures performed by residents after commencing the Urology training (Table 3).

DISCUSSION

The main finding of this study was that there had been an increase in the overall number of cases done by final year residents from the commencement of the urology training programme when compared to the era before that. This overall increase was not statistically Significant; nonetheless when the number of cases was categorized there was a statistically significant increase in the number of open upper tract surgeries compared to before the era of training commencement. This increase in number is not surprising since the training is aimed at churning out specialists.

A notable finding is the drop in the absolute numbers of endoscopic surgeries performed in the period of urology training compared to before the commencement. This

Figure 1: Number and category of cases performed by residents.

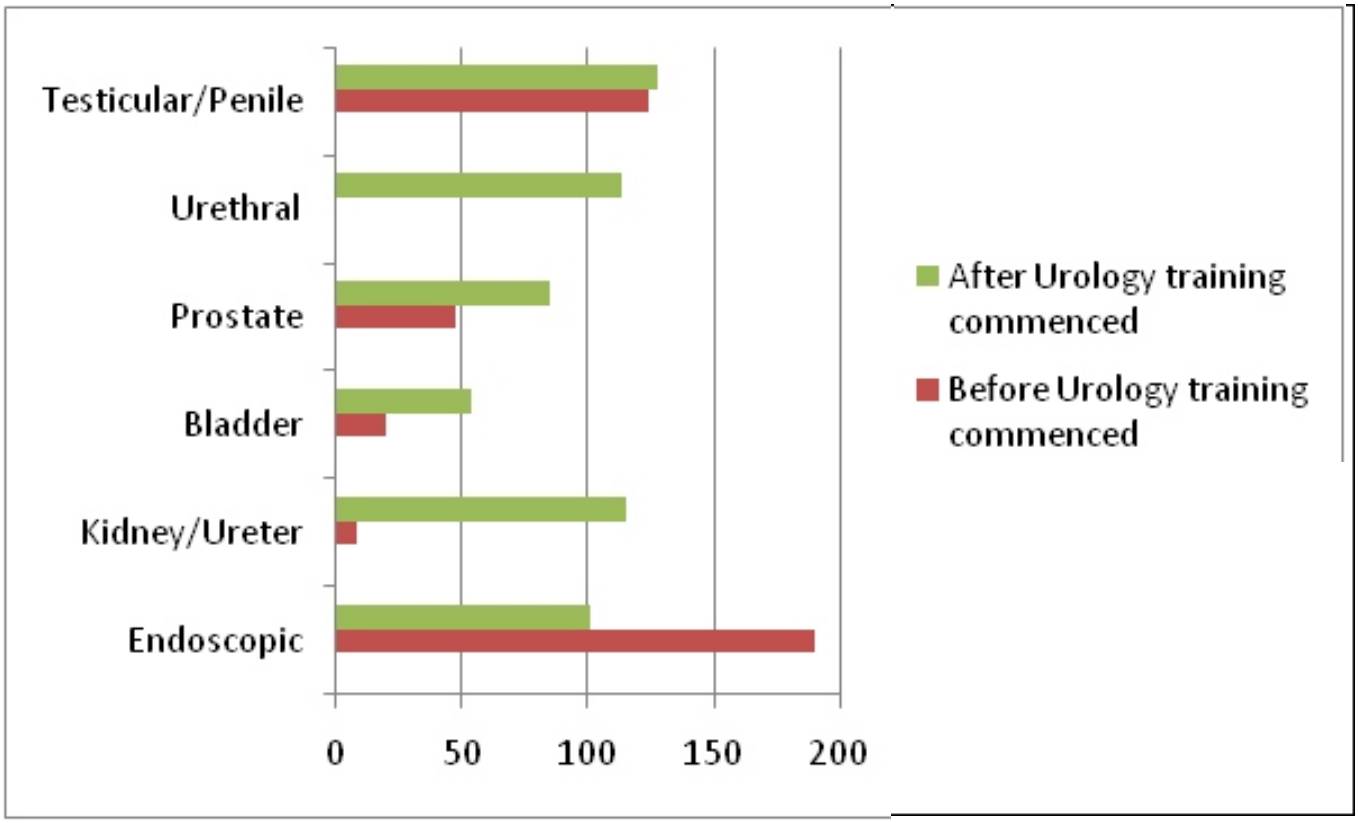

Table 1: Open upper urinary tract surgeries performed by residents

Type of Surgery	Before Urology residency commenced	After Urology residency commenced	p-value
Pyelolithotomy	4	32	
Pyeloplasty	1	30	
Ureterolithotomy	1	14	0.0025
Ureteroneocystostomy	2	23	
Nephrectomy	0	16	
Total	8	115	

Table 2: Endoscopic procedures performed by residents

Type	Before urology residency commenced	After Urology residency commenced	p-value
Diagnostic Urethrocystoscopy	**79**	**56**	
VIU	**40**	**-**	
D-J Stent removal	**21**	**2**	**0.075**
Bladder tumour biopsy	**23**	**30**	
Others	**27**	**12**	
Total	**190**	**100**	

Key-VIU Visual Internal Urethrotomy
D-J- Double J

may not be unconnected with challenges of acquiring, installing and maintaining endoscopic equipment. These delicate equipments would have deteriorated over time with no commensurate replacements. There's a perceived background of inadequate surgical exposure for residents in the surgical specialties. A recent survey of residents in 3 training institutions in Nigeria showed most residents considered the facilities in their centers as being below average [4]. A review by Ocheke *et al* in Jos showed a poor exposure of residents to training on vaginal hysterectomy in obstetrics and gynaecology[5] .Similarly a survey by Adobamen in Benin revealed an inadequate exposure of otorhinolaryngology residents to tympanoplasty [6].

This lack of proper practical training is distressing though not uniquely Nigerian. In a survey of laparoscopic training during residency, Duchene *et al.*, discovered that only 38% of United States urology residents felt that their laparoscopic experience was at least average or acceptable[7] Another recent study 'despairingly' concludes that an average urology resident in the United States gets to perform a mean of 'only' 6.7 and 9.5 continent and incontinent urinary diversions respectively, during the course of his/her training and calls for corrective measures in this regard[8].

The surest way of sustaining a surgical specialty, apart from mentoring by established surgeons, is to develop specialists who are apt to teach, design creative and innovative research relevant to the setting and disseminate the findings in order to enhance service delivery [9]. The goal of surgical education and residency is to prepare residents for this lifelong vocation[10] and, to achieve this; such qualities should be imbibed as trainees. The American Accreditation Council for Graduate Medical Education lists six core competences for which a resident must be assessed during training, one of which is Practice-Based Learning and Improvement that includes research, attendance of conferences and practice of evidence-based surgery [11,12].

The findings in this study imply that whereas the creation of urology residency programme training has ensured an overall higher turnover of open operative cases performed by residents there has been inadequate exposure of these residents to endourological procedures. This means newly qualified urological surgeons may rather be lacking the requisite skills in endourological surgeries. Thus their patients may not be offered the option of an endourological procedure where there is a need for such or they may have such procedure with a relative increase in operative risk.

To mitigate such hazardous situation, perhaps the introduction of an American or Canadian style fellowship by the training bodies i.e. NPMC and WACS, in specific centres with adequate endourological equipment may help in overcoming this deficit at the end of residency. Information from several different medical and surgical specialties in Western countries indicates that the main reason a fellowship is chosen is to gain extra training in that clinical area of interest and gain confidence and maturity [13].

This study has several limitations; it is difficult to assess benefits of a surgical training programme solely on number of cases done by residents, there are intangible qualities that are difficult to evaluate by the methods currently available such as cognitive knowledge, clinical thinking and surgical judgment[14]. The study is also limited by its single training centre assessment and retrospective nature.

There is no question that surgery is, in some respects, a technical exercise at which some people are more adept than others. Perhaps a structured skill program can be developed that will benefit the trainer in the selection process and the resident in improving his or her technical ability. This kind of philosophy is slowly spreading throughout Europe and getting some consensus. Currently, it is felt that improved trainee selection and more objective assessment of performance and progress during training represent the basis for future quality assurance in surgical practice [15].

Teaching and training surgical procedures to the next generation of urological surgeons will require an innovative mindset for surgical educators in the developing countries given the relative lack of facilities. More formal alliances between tertiary teaching hospitals and local community hospitals may further help residents' access common surgical diseases of sufficient volume and quality to provide a meaningful educational experience [16].

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