THE PRACTICE OF MINIMAL ACCESS SURGERY IN NIGERIA. CHALLENGES AND PROSPECT.

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ABSTRACT

BACKGROUND: There is increasing enthusiasm in the acquisition of skills in minimal access surgery MAS in Nigeria.

OBJECTIVES: This study was therefore conducted to assess the extent of practice of MAS in 25 Federal and State Teaching Hospitals TH and 22 Federal Medical Centres FMC in Nigeria, the challenges faced and the prospect for it.

METHODS: This was a prospective descriptive longitudinal study. A stepwise multistage cluster sampling technique was adopted whereby questionnaires were distributed to consultant delegates at the November 2015 SOGON Conference in Abuja and at the Benin Fetal Medicine Workshop in 2016. Data was analysed using the statistical package SPSS- 20.

RESULTS: The differences between the number of tertiary institutions that perform and those that do not perform diagnostic hysteroscopy was not statistically significant but it was statistically significant for diagnostic laparoscopy and dye test with more hospitals doing them (p = 0.001). Fewer institutions perform resection of endometrial polyps, endometrium, submucous fibroids, endometrial synechiae and septum, abdominal adhesiolysis, Salpingectomy, oophorectomy, cystectomy, myomectomy and hysterectomy (P = 0.001- 0.07 and 0.02-0.001 in FMC and TH respectively) with most of the differences been statistically significant. Endometrial ablation, incontinence and other major MAS were not performed in Nigerian tertiary centres.

CONCLUSION: MAS has been partially introduced in Nigerian tertiary health institutions but there are enormous challenges to its expansion.

KEYWORDS: Practice, Minimal access surgery, Nigeria, Extent, Challenges and Prospect,

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INTRODUCTION

Minimal access surgery MAS is a surgical procedure that is performed in a manner that causes little or no trauma or injury to the patient, such as through a cannula that is inserted through one or more small incisions (instead of a large one that is normally used in conventional surgery) using electrosurgical instruments, lasers, endoscopes, or laparoscopes. The cavity in which the surgery is performed determines its name, for example, Laparoscopy (abdominal cavity), hysteroscopy (uterine cavity), thoracoscopy (thoracic cavity), and arthroscopy (joint cavity).

MAS have been in existence for a very long time. A tremendous breakthrough occurred in 1966 when Hopkins invented the rod lens system. Around the same time, Semm developed an automatic insufflator that monitored intra-abdominal pressure and gas flow.

Advantages of Minimal Access Surgery when compared with conventional surgery are as following: less trauma to the skin and muscles, better visualization, less postoperative pain and therefore decreased need for postoperative narcotic use and its complications, shorter stay in hospital, faster recovery, smaller postoperative wounds associated with fewer wound complications, less scarring, and better alignment. Other benefits are reduced infection rate, less tissue dissection and disruption and better quality of life post Surgery [1, 2] The use of video imaging allows surgical assistants, anaesthesiologists and nurses to view what the surgeon is doing and to actively participate in the procedure in their respective roles. [3]

The disadvantages of MAS include the expensive equipment involved in performing it, longer operation time, potential for major complications in

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inexperienced hands, loss of tactile feedback, need for surgeons to undergo intensive training which has long learning curve, difficulty ccontrolling bleeding and the limited number of instruments and angles in which the operation can be carried out.

Minimal Access Surgery just like any other surgery has its complications which are as following: those related to placement of the initial trocar or initial creation of pneumoperitoneum namely organ damage, [3]those arising from dissection during surgery including direct injuries to organs, as well as thermal injury, carbon dioxide –related complications, namely hypercapnia, acidosis, cardiovascular compromise, gas embolism and hypothermia.

Furthermore, laparoscopy cannot always be performed on everyone, for instance, patients with chronic obstructive pulmonary or cardiac disease, blood coagulation problems, advanced stage of pregnancy or cancer and some patients with many prior abdominal operations may not be suitable for the surgery. The listed limitations of MAS are not absolute contraindications but relative.

The introduction of minimal access surgical techniques has been rapid in the developed world of Europe and North America and some Asian countries. Irrespective of its abundant advantages, which outweigh the disadvanges and complications, the practice of MAS has been scanty on the African continent. Few of such surgeries are performed in countries like South Africa, Kenya, Ghana, Nigeria and others. However, there is increasing enthusiasm in the acquisition of skills in diagnostic and therapeutic laparoscopic and hysteroscopicsurgeries. [4]It is therefore imperative that a research is carried out to assess the practice of MAS in Nigeria,

OBJECTIVES

The goals of this study which focus specifically on Nigeria are to evaluate the extent of adoption of MAS in different branches of gynaecology, identify and address the factors inhibiting their introduction and expansion and forecast the prospect for the techniques in gynaecological practice.

ETHICAL CONSIDERATIONS

This study proposal was presented before the ethical committee of the University of Port Harcourt Teaching Hospital and was approved in March 2016. Participants were given the right to accept or decline participation and they were reassured that their decision would not affect their care.

MATERIALS AND METHODS.

Design

This was a prospective descriptive longitudinal study carried out at the University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria. We used a mixed methods approach for data collection.

Determination of study population

Firstly a literature search was performed using Pub med (MEDLINE), Biomed central, Google and Cochrane Database on the practice of minimal access surgery in Nigeria. Keyword search statements used were 'the practice of MAS in Gynaecology in Nigeria,' 'practice of laparoscopy in Nigerian Tertiary centres', 'practice of hysteroscopy in Nigeria,' 'advantages and disadvantages of minimal access surgery,' and 'evolution of MAS.' 'Tertiary medical centres in Nigeria.' Special attention was paid to papers written by Nigerian authors on the practice of MAS in the country. We also searched for the prevalence in Nigeria of different gynaecological conditions where MAS is applicable. Other sources of information were the website of the World Laparoscopic Hospital in Gurgaon, India and the NICE guideline UK.

In view of the paucity of information online on the practice of minimal access surgery in Nigeria, we decided to assess the practice in the whole Federal Teaching Hospitals and Federal Medical Centers in Nigeria. The centres were identified on the website of the Nigerian Federal Ministry of Health and were enumerated in appendices 1 and 2 below. At the time of the study, State-owed Teaching Hospitals were looked for by searching the net and asking colleagues that work in respective States. Seven State-owed Teaching Hospitals were identified and included in the study. The Hospitals are as following: Delta State University Teaching Hospital Oghara, Irrua Specialist Teaching Hospital Edo State, Olabisi Onabanjo University Teaching Hospital Sagamu, Ladoke Akintola Univ of Tech Teaching Hospital (LAUTECH) Osogbo and Baron Dikko Teaching Hospital Kaduna (Appendix 1).

Sampling Tools

We designed a questionnaire, shown in Appendix 3, with the questions presented in a nominal response formatto elicit a 'Yes' or 'No' response. Additional question asked on the questionnaire was on the challenges faced in the introduction and practice of minimal access surgery in Nigeria. Telephone communication was also used.

Sampling Techniques

Our aim was to achieve complete answering of the questions on the questionnaire by at lease 2 consultants with at least one of them with special interest in Reproductive medicine and / or Minimal Access Surgery (RM and MAS) from each of the Tertiary Institutions. This was based on the assumption that 2 consultants from each of the centres should be able to give the true picture about the practice of MAS in their

respecticve centres.

We therefore conducted a stepwise multistage cluster sampling technique whereby a total of 300 questionnaires were distributed to consultant delegates at the November 2015 SOGON Conference in Abuja and also at the Fetal Medicine Workshop in Benin, 2016. Such large number of questionnaires was distributed because the data on the demographic characteristics of the delegates was not known to us and the organisers of the conference.

At the Abuja conference, the questionnaires were distributed to all the Consultant delegates during 2 sessions on Reproductive Medicine and Minimal access Surgery and also to delegates during 2 of the plenary sessions. At the Benin Fetal Medicine workshop, they were offered to all that were available at one of the sessions.

The number of questionnaires that were distributed at each of the components of the Cluster, the number that was returned and the number that was completed appropriately and therefore analysed were all illustrated in table 1.

Content of the Cluster	Questionnaires			
	Distributed	Returned	Analysed	
			Extent*	Challenges**
Abuja Conference				
2 Sessions on RM and MAS	50	50	50	50
2 Plenary sessions	200	180	165	110
Benin Fetal Medicine workshop	50	47	35	20
Phone Communication	4	4	4	4
Total	304	281	254	180

RM – Reproductive Medicine
* - Extent of practice of MAS
** - Challenges faced in the practice of Minimal surgery

Table 1. Distribution of the questionnaires

The returned questionnaires were analysed and at least 2 to 3 consultants from each of the tertiary centres completed them except University of Calabar and Bayelsa State Teaching Hospitals that were not represented. We therefore telephoned four consultants, two from each of the Hospitals and they all responded with answers to questions on the questionnaires. Final analysis of the questionnaires show that at least 2-3 consultant delegates from each of the tertiary centres in Nigeria answered the questions on each of the sessions of the study (Extent and Challenges).

Data analysis
The data on the extent of practice of minimal asses surgery was analysed using the SPSS -20. Two tables were created, each containing data for Teaching Hospitals TH and Federal Medical Centres FMC respectively as shown in tables 2 and 3. The number of hospitals that perform and those that do not perform respective minimal access surgeries were compared, using the Chi-square X^2 and the P-values. When the P-value was less than 0.05, the difference between two variables was said to be statistically significant. The challenges faced in the introduction and the practice of MAS was assessed by direct analysis of the replies on the completed questionnaires using proportions and percentages as shown in table 4.

RESULTS

The extent of practice of minimal access surgery in Nigeria.
The findings were illustrated in Tables 1 and 2 above. The number of tertiary institutions that perform diagnostic hysteroscopy, diagnostic laparoscopy and laparoscopy and dye test was more than those that do not. The differences were not statistically significant for diagnostic hysteroscopy -13 versus 9 and 15 versus 10 in TH and FMC respectively. They were statistically significant for diagnostic laparoscopy and dye test – 17 v 8 and 18 v 4 for

Procedure	Nigerian Teaching Hospitals = 25		Chi-square (?2); (p-value)
	Perform N (%)	Does not perform N (%)	
Diagnostic Hysteroscopy	15 (60)	10 (40)	2.0 (0.158)
Operative Hysteroscopy			
Resection of polyp	6 (24)	19 (76)	13.52 (0.001)*
Resection of submucous fibroid	3 (12)	22 (88)	28.88 (0.001)*
Resection of intrauterine synechiae	8 (32)	17 (68)	6.48 (0.01)*
Resection of uterine septum	3 (12)	22 (88)	28.88 (0.001)*
Endometrial ablation			
TCRE	0 (0.0)	25 (100)	50.0 (0.001)*
[illegible]	0 (0.0)	25 (100)	50.0 (0.001)*
Thermal balloon ablation of the endometrium	0 (0.0)	25 (100)	50.0 (0.001)*
Microwave endometrial ablation	0 (0.0)	25 (100)	50.0 (0.001)*
Diagnostic laparoscopy	17 (68.0)	8 (32)	6.48 (0.01)*
Laparoscopy and Dye Test	16 (64)	9 (36)	3.92 (0.05)*
Laparoscopic surgery			
Salpingectomy for ectopic pregnancy	3 (12)	22 (88)	28.88 (0.001)*
Salpingostomy for ectopic pregnancy	3 (12)	22 (88)	28.88 (0.001)*
Oophorectomy for ovarian tumour (n=20)	3 (12)	22 (88)	28.88 (0.001)*
Ovarian cystectomy (n=22)	4 (16)	21 (84)	23.12 (0.001)*
Sterilisation	6 (24)	19 (76)	13.52 (0.001)*
Tubal anastomosis for reversal of sterilisation	1 (4)	24 (96)	42.32 (0.001)*

Treatment of hydrosalpinx	0 (0.0)	25(100.0)	50.0 (0.001)*
Abdominopelvic adhesiolysis	7 (28)	18(72)	9.68 (0.002)*
Diathermy to endometriosis	4 (16)	21 (84)	23.12 (0.001)*
Resection of endometriotic nodles	1 (4)	24 (96)	42.32 (0.001)*
Resection of endometriotic rectovaginal septum (n=21)	1 (4)	24 (96)	42.32 (0.001)*
Myomectomy	2 (8)	23 (92)	35.28 (0.001)*
LAVH	0 (0.0)	25 (100.0)	50.0 (0.001)*
Subtotal abdominal hysterectomy with morcellation of the uterus	0 (0.0)	25 (100.0)	50.0 (0.001)*
Total abdominal hysterectomy	0 (0.0)	25 (100.0)	50.0 (0.001)*
Laparoscopic lymphadenectomy	0 (0.0)	25 (100.0)	50.0 (0.001)*
Urogynaecology			
Cystoscopy	8 (33.33)	16 (66.67)	6.48 (0.01)*
Tension-free vaginal tape TVT	0 (0.0)	19 (100.0)	38.0 (0.001)*
Transobturator Tape TOT	0 (0.0)	19 (100.0)	38.0 (0.001)*

* - Statistically significant (p<0.05). Total number of Teaching Hospitals = 25.

Table 2. Response to questions on the practice of MAS in FTH

Procedure	FMC = 22		Chi-square (÷2); (p-value)
	Perform N (%)	Does not perform N (%)	
Diagnostic Hysteroscopy	13 (59.09)	9 (40.91)	1.45 (0.228)
Operative Hysteroscopy			
Resection of polyp	8 (36.36)	14 (63.64)	3.27 (0.07)
Resection of submucous fibroid	7 (31.82)	15 (68.18)	5.82 (0.02)*
Resection of intrauterine synechiae	8 (36.36)	14 (63.64)	3.27 (0.07)
Resection of uterine septum	8 (36.36)	14 (63.64)	3.27 (0.07)
Hysteroscopic sterilisation	0 (0.0)	22 (100.0)	44.0 (0.001)*
Endometrial ablation			
TCRE	2 (9.09)	20 (90.91)	29.45 (0.001)*
Nova –Sure	0 (0.0)	23 (100.0)	
Thermal balloon ablation of the endometrium	0 (0.0)	22 (100.0)	44.0 (0.001)*
Microwave endometrial ablation	0 (0.0)	22 (100.0)	44.0 (0.001)*
Diagnostic laparoscopy	18 (81.82)	4 (18.18)	17.82 (0.001)*
Laparoscopy and Dye Test	19 (86.36)	3 (13.64)	23.27 (0.001)*
Laparoscopic surgery			
Salpingectomy for ectopic pregnancy	3 (13.64)	19 (86.36)	23.27 (0.001)*
Salpingostomy for ectopic pregn	3 (13.64)	19 (86.36)	23.27 (0.001)*
Oophorectomy for ovarian tumour	3 (13.64)	19 (86.36)	23.27 (0.001)*
Ovarian cystectomy	8 (36.36)	14 (63.64)	3.27 (0.07)
Sterilisation	6 (27.27)	16 (72.73)	9.09 (0.003)*
Tubal anastomosis for reversal of	2 (9.09)	20 (90.91)	29.45 (0.001)*
Treatment of hydrosalpinx	4 (18.18)	18 (81.82)	17.82 (0.001)*
Abdominopelvic adhesiolysis	5 (22.73)	11 (77.27)	13.09 (0.001)*
Diathermy to endometriosis	6 (27.27)	16 (72.73)	9.09 (0.003)*
Resection of endometriotic nodles	1 (4.55)	21 (95.45)	36.36 (0.001)*
Resection of endometriotic rectovaginal septum	0 (0.0)	22 (100.0)	44.0 (0.001)*
Myomectomy	4 (18.18)	18 (81.82)	17.82 (0.001)*
LAVH	3 (13.64)	19 (86.36)	23.27 (0.001)*
Subtotal abdominal hysterectomy with morcellation of the uterus	1 (4.55)	21 (95.45)	36.36 (0.001)*
Laparoscopic TAH with removal	2 (9.09)	20 (90.91)	29.45 (0.001)*
Laparoscopic lymphadenectomy	0 (0.0)	22 (100.0)	44.0 (0.001)*
Urogynaecology			
Cystoscopy	8 (36.36)	14 (63.64)	3.27 (0.07)
Tension-free vaginal tape TVT	0 (0.0)	13 (100.0)	26.0 (0.001)*
Transobturator tape TOT	0 (0.0)	22 (100.0)	44.0 (0.001)*

* - Statistically significance (p<0.05). Total number of Federal medical centres = 22.

Table 3. Response to questions on the practice of MAS in FMC.

diagnostic laparoscopy and 16 v 9 and 19 v 3 for dye test with p = 0.001 in all the pairs in both TH and FMC.

On the hand, operative hysteroscopy namely resection of the endometrium, polyps, submucous fibroids, uterine septum and synechiae, cystoscopy, abdominopelvic adhesiolysis, laparoscopic sterilisation, salpingectomy, cystectomy, oophorectomy, myomectomy and laparoscopic-assisted vaginal hysterectomy LAVH were less performed in both TH and FMC. These differences were statistically significant (p-0.02-0.001) for TH and FMC except for resection of endometrial polyp, septum and synechae, abdominipelvic adhesiolysis and ovarian cystectomy where the differences were not significant (p = 0.07) for FMC.

Regarding endometrial ablative procedures namely, Nova-Sure, thermal balloon ablation, microwave endometrial ablation and any other, they are not practised at all in Nigeria. Other major MAS namely diathermy to endometriosis, resection of endometriotic nodules including that of rectovaginal septum, subtotal abdominal hysterectomy, lymphadenectomy and many others are not performed in Nigerian tertiary institutions (Table 2 and 3). Furthermore, incontinence surgeries namely tension-free virginal tape and transobturator tape and also vault prolapse surgery - laparoscopic sacrocolpopexy are also not performed in Nigeria.

Challenges faced in the introduction and the practice of minimal access surgery in Nigeria

180 completed questionnares were used for this assessment. 22.22 % of the consultants gave the following answers as the challenges to the practice of MAS in Nigeria: patients poverty and inability to pay for the cost of treatment, lack of trained medical personnel in MAS and epileptic electrical supply in tertiary centres 19.44% gave the following answers: high cost of the instruments for MAS and lack of consumables e.g. swabs, antiseptic solution, etc.

% of total response (N = 180)	Challenges to the practice of MAS in Nigeria.
10 (5.56%)	Conservatism and resistance to change
40 (22.22%)	Patients poverty and inability to pay for the high quality service of MAS
30(16.67%)	Appalling salary scale for doctors and the general population
35 (19.44%)	High cost of the instruments for MAS
25 (13.89%)	Poor investment in healthcare by the Government
18 (10%)	Poor funding for training
40 (22.22%)	Lack of trained medical personnel in MAS
40 (22.22%)	Epileptic electric supply in tertiary centres
35 (19.44%)	Lack of consumables e.g. swabs, antiseptic solution, etc.
15 (8.33%)	Lack of support for innovation by the Nigerian Government, firms and multinational companies.

Table 4. Challenges to the practice of MAS in Nigerian Tertiary Medical Institutions

Other answers were appalling salary scale for doctors and the general population and therefore no motivation to work (16.67%), poor investment in healthcare by the Government (13.89%), Poor funding for training (10%), lack of support for innovation by the Nigerian Government, firms and multinational companies (8.33%)and conservatism and resistance to change (5.58%). Contrary to what is obtainable in developed countries, successive Nigerian Government, firms and multinational companies do not support innovation or research (Table 4).

DISCUSSION

In the developed world, MAS has been introduced in all branches of gynaecology, namely acute gynaecology, elective benign gynaecology, infertility, urogynaecology and oncogynaelogy.

Infertility

The introduction of diagnostic hysteroscopy in the investigation of infertile couple is recognised as the first application of minimal access surgery in Nigeria. This is confirmed by the interest shown by consultants in the tertiary centres during the data collection. 15 TH and 13 FMC perform the procedure. Hysteroscopy is a well-tolerated procedure, which allows reliable visual assessment of the cervical canal and uterine cavity and provides the opportunity to perform therapy in the same setting.[6]

15-20% cases of female infertility is associated with uterine factors.[7] Hence evaluation of the uterine cavity prior to assisted conception is vital. Most studies have reported an incidence of 19-50% for uterine pathology on hysteroscopy[8] but in Nigeria the figure stands at 75-76%.[9] The identified pathology is as following: submucous fibroids, endometrial polyps, intrauterine adhesions, complete septum and cervical stenosis. Diagnostic hysteroscopy is therefore one of the most performed MAS in Nigerian tertiary institutions.

Two of the most performed MAS in tertiary institutions in Nigeria are diagnostic laparoscopy and Laparoscopy and dye test. This finding is dictated by the epidemics of infertility of uterine and tubal origin in Nigeria. Surgery for endometriosis is rarely performed in Nigerian tertiary hospitals and centres. In the developed world generally, 25% of infertile women have endometriosis and 30-50% of women with endometriosis are infertile.[10] Common assertion is that African American women are less likely than Caucasian women to have endometriosis. We now know that there is a marked regional variation in the prevalence of endometriosis in Nigeria - 8.2% at Ahmadu Bello University Hospital in Zaria[9] (and 4.3% among the Ibos (diagnosed in patients having pelvic operations), of which 90.8% of the cases were not diagnosed before operation, demonstrating the lack of awareness of the condition.[12] The issue here is that cases of endometriosis in Nigeria are all managed by laparotomy instead of laparoscopy. Women in Nigeria are therefore deprived of the advantages and benefits that are associated with laparoscopic surgery.

Acute Gynaecology.

Laparoscopic surgery for gynaecological emergencies, namely ectopic pregnancy and complicated ovarian cysts (torsion, rupture, bleeding into it) are rarely performed in Nigerian tertiary centres. There is no collated National statistics on the prevalence or incidence of different types of ovarian cysts and ectopic pregnancy in Nigeria. Unfortunately majority of the women with the conditions are not offered laparoscopic surgery; laparotomy is the gold standard in Nigeria. Again women are deprived of a better treatment option, which is laparoscopy as offered routinely in the developed world and some other African countries.

Elective Benign gynaecological

Some of the gynaecological pathologies that fall into this category are fibroid of different location, endometrial polyp, and pelvic adhesions causing chronic pelvic pain, heavy menstrual period and persistent benign ovarian cyst of big size. The gynaecological operations that are normally performed for these conditions are as following: myomectomy, polypectomy, pelvic adhesiolysis, hysterectomy, cystectomy and oophorectomy. In our study, transcervical resection of uterine submucous fibroid, laparoscopic abdominal myomectomy and laparoscopic abdominal adhesiolysis are rarely performed in Nigeria (Tables 2 and 3). LAVH,

laparoscopic total and subtotal abdominal hysterectomy are rarely performed in Nigerian tertiary health institutions.

It is estimated that 20 to 30% of women above the age of 30 years harbour uterine fibroids, which account for 3.2–7.6% of new gynaecological cases and 68.1% of hysterectomies in Nigeria.[13,14] Abdominal hysterectomy is normally performed in 58.1% while myomectomy in 41.9 – 54.7% of fibroid in Nigeria.[15,16]

Regarding heavy menstrual periods, there is no data on its prevalence or incidence in Nigeria. However, what is certain is that a significant number of women suffering from the problem. Again for fibroid and many other benign gynaecological conditions, Nigerian women are deprived of the benefits of minimal access surgery, which is offered in developed countries, and many of the Asian countries. Furthermore, second-generation endometrial ablation, namely thermal balloon ablation, microwave ablation, Nova Sure and others are not heard of in Nigeria. (Table 2 and 3)

Urogynaecology

Non-fistulous stress incontinence is a common problem among women of reproductive age in Nigeria with prevalence of 12%.[17] Majority of the affected women do not seek medical attention because they are convinced that there is no cure for their condition. Generally in Nigeria, incontinence surgery is not performed at all (Table 2 and 3). This is in contrast with what happens in the developed world, other African States like South Africa and Kenya where women are offered the following minimal access surgeries: colposuspension, tension-free vaginal tape TVT and transobturator tapesTOT.

Furthermore, sacrospinous fixation and laparoscopic sacrocolpopexy are not offered for vault prolapsed in Nigeria, a country of more than 170 million people. There is therefore urgent need for retraining of gynaecologists and restructuring of the curriculum for resident doctors so that gynaecologist will be well equipped with modern skills and knowledge to work in their profession.

Gynaecological oncology

Our data showed that laparoscopic lymphadenectomy for gynaecological malignancy is not practiced in Nigeria (Table 3 and 4). Sporadic reports and personal observation show that the incidence or prevalence of late stages cervical carcinoma in Nigeria should be alarmingly high. Unfortunately, there is no standard national statistics on the problem. Unlike in developed countries, there is no evidence to show that laparoscopic surgery either diagnostic or therapeutic is offered to women in Nigeria gynaecological malignancies.

Prospect for MAS in gynaecology in Nigeria

It is reassuring that there is increased awareness among Nigerian gynaecologists of the need for MAS. Many have travelled out of the country to other African states like South Africa and Kenya, Europe, India and North America and have witnessed the practice of minimal access surgery. The general trend therefore is an improved individual effort in acquiring knowledge of MAS and other specialised fields in different countries of the world.

Many private hospitals in big cities in Nigeria carry out MAS. Furthermore, there is much contribution from Nigerian specialist working in developed countries. They travel home to teach the skill of minimal access surgery. Some foreign NGOs also contribute to the expansion of knowledge of MAS in Nigeria. So the future for minimal access surgery in Nigeria is reassuring.

RECOMMENDATIONS

Firstly, there is urgent need for retraining of gynaecologists, general and paediatric surgeons in minimal access surgery. Qualified candidates can be sent abroad for retraining. The Federal Ministry of Health and Education can also set up well equipped centres of excellence in MAS in 6 University Teaching Hospitals located in 6 geopolitical regions of Nigeria. Employed expatriates, NGOs and Nigerian specialists abroad will be more than happy to travel home to work in those centres and train consultant gynaecologists who should impart the acquired knowledge to other consultants and residents.

Secondly, there should be massive investment in infrastructures and instruments for minimal access surgery. These instruments can be acquired in Europe, America and better still in other emerging markets. Thirdly, doctors in other fields have to be educated on the importance of minimal access surgery and when to refer patients to the gynaecologist for that purpose. Patient's information leaflets should also be made available for those who can read them.

Fourthly, it is imperative that as in developed countries, a regulatory body is formed. Such a body can be called "Minimal access Surgical Society of Nigeria." The main responsibility of the body will be to advance the ideals of minimal access surgery, regulate the activities of doctors and affiliate with other such bodies all over the world.

Fifthly, the Government, successful indigenous companies and multinational firms in the country should support research projects in minimal access surgery. Initially, the research should focus on

statistical data for different surgical and medical conditions and treatment options. The Government cannot plan the health service in the absence of accurate statistical data.

CONCLUSION

The practice of minimal access surgery in gynaecology in Nigeria is still at its tadpole level. The techniques have been partially introduced in few tertiary centres. The surgeries embarked upon are mainly diagnostichysteroscopy, laparoscopy and dye test. Laparoscopic incontinence surgeries, laparoscopic, radical hysterectomy and many other major MAS are not performed in Nigeria.

Support from the Government, indigenous and multinational foreign firms is urgently needed in our quest to embrace the ideals of minimal access surgery. The Teaching hospitals, specialists and general hospitals should be supported. Training within Nigeria and abroad is to be encouraged and supported by individuals and the Government. Generally, the prospect for minimal access surgery in Nigeria is reassuring.

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