Chapter 6

Screening Methods for Gynaecological Cancers

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1. Introduction

Globally life expectancy is on the increase and with this an increase in the incidence of age related gynaecological cancers and other related medical conditions. Gynaecological cancers accounted for 19% of the 5.1million estimated new cancer cases in the world with 2.9 million cancer deaths in 2002. (Sarkaranayanan et al, 2006). The essence of screening is to detect disease among healthy population without symptoms of the disease with the primary purpose of reducing the morbidity and mortality with the disease. This has been done with varying success in various countries having designed programmes aimed at reducing the scourge of gynaecological cancers.

The pattern of screening programmes can be divided into two categories namely: opportunistic and organized. The organized screening programmes are mostly observed in the developed countries like Finland, Sweden and the United states of American were specific policy decisions have been taken by the respective Government with the concentration of resources to gynaecological cancer screening with resultant of the population and improved outcome. Following the implementation of organized screening programmes especially with cervical cancer remarkable reductions in mortality in Nordic countries have been observed with largest fall in Iceland, Sweden and Finland (Laara et al, 1987) converse is the case in developing countries where most patients have poor health seeking attitude; uninformed and Disempowered population, increasing competing health needs, limited human and material needs, unaffordable treatment for gynecological cancers and lack of political will on the part of the respective governments to create policies that will focus resources on early gynaecological cancer detection(Danny L et al 2006). The economics of these countries put a lot of pressure on the limited resources in the face of multiple demand.The average per capital expenditure in many African countries is approximately USD30 compared to USD500 in the United States of `America (Denny L et al, 2005) creating an economic menu for poorly organized screening programmes. Hence screening pro-

grammes are largely opportunistic in nature relying on other channels of health care to provide a vehicle for screening like the family planning clinics and STI clinics.

Most female genital tract malignancies have identifiable precursors such as cervical intraepithelial lesions, vaginal intraepithelial, vulva intraepithelial, atypical endometrial hyperplasia for endometrial cancer while others like ovarian malignancies do not have identifiable precursors making screening modalities non specific. The potential benefits of screening includes early detection of pre invasive cancers and avenue for provision of curative services to patients identified while reassuring those that are negative and rechanneling health resources to other purposes. It must be stated that screening programme have potential limitations of false negative and positive results giving false assurances to affected patients and overtreatment of none affected patients. (Kwawukume et al, 2005)

2. Criteria for a sucessful screeening programme

Irrespective of the type of screening embarked on whether organized or opportunistic, Wilson et al (1968) stipulated certain standards to be met for a successful screening programme and these include:

- The condition should be an important health problem, have recognizable latent phase and known natural history with acceptable and available treatment options for identified patients.
- The validity and predictiveness of the screening method must be high for the identified precancerous lesion.
- Proposed screening should be a continuous process of case finding and Not "a all in one" project
- In addition to the above, policies should aim at designing programmes that will be economically balanced on medicare that will be provided for the diagnosed patients.

Judging from the above stated it is obvious why most of the screening projects designed by most governments in Sub Saharan African and Asia do not succeed as against what is obtained in the developed regions of the world. Gynaecological malignancies like cervical cancer have known life cycle and well established link with 99% of cases of cervical cancer caused by oncogenic strains of human papilloma virus of 16,18, 35 and 41 identified with a duration of 10-20 years of transformation to malignancy noted. The universality and acceptable of the screening methods and treatment options for precursors of the cancer had made it an epitome of success in the area of reducing morbidity and mortality. Ovarian malignancies do not have known precursor thus making screening a challenge without acceptable consensus on screening modalities.

3. Methods of gynaecological cancer screening

There are basically three broad methods of gynaecological cancer screening and a combination of method can be utilized to achieving a satisfactory result. These are:

- Biochemical: use of tumor markers such as CA125, CA 19-9,Human chorionic gonadotropin, urinary gonadotropin peptides, BRCA 1 and 2, Alpha fetoprotein.
- Physical-Radiological: The use of physical examination and ultrasound scan can be helpful in screening ovarian cancers assessing the ovarian volume and endometrial thickness screening for endometrial malignancies
- Biophysical methods: These include the PAP smears, vulva and vaginal smears, laparoscopy, colposcopy and vacuum aspiration

4. Screening for cervical cancers

The value of screening in identifying precursors of cervical cancers and reducing the cancer burden is well demonstrated in the various methods employed. Ever since the introduction of using cervical exfoliates for screening by George Papanicoloeau and coworkers in 1943, the incidence of cervical cancer related mortalities have reduced by 70% because of well organized screening programmes (Noller 2005,). The relative ease in performing screening of cervical cancer is related to the accessibility of the cervix to allow the analysis of exfoliated cells for cytology, which in turn is a fairly tolerated procedure for patients and relatively cheap to carry out. 60% of cancers of the cervix develop in the unscreened general population but despite screening 40% arise from the screened population. This is attributed to false negative results as result of sampling error or wrong interpretation of cytology reports or improper management abnormal results (Carmicheal, 1984). In addition to the traditional pap smear, other screening methods have being introduced like, liquid based cytology, computer assisted liquid based cytology, colposcopy and Human papilloma virus screening

4.1. Cervical cytology

This method uses the exfoliated cells, which are examined microscopically, and diagnosis made by recognition of well-known histopathological patterns, which identifies cellular changes of cervical intraepithelial neoplasia. These changes are graded as normal, atypical squamous cells of uncertain significance, low-grade squamous intraepithelial lesions and high grade intraepithelial lesions according to the Betheseda System of classification

The specificity of PAP smear is 98% but the sensitivity is lower and variable because of inter-observer differences in interpretation of slides and sampling error

4.2. Preparation for PAP smear

The procedure of PAP smear is usually scheduled out of menstrual flow periods but should not be deferred because of an unscheduled bleed which may as well errand a cervical pathol-

ogy.It is advisable for evidence of cervicitis /vaginitis be treated if present and intercourse should be avoided with 24-48hours of the procedure in addition to avoidance of vaginal douching or application of vaginal tampons and creams which may introduce artifacts on the slides examined. Clinical information on the last menstrual period, use of hormonal contraception, intrauterine contraceptive devices, any form of immunosuppression and previous history of abnormal smears are important to the pathologist in accurate interpretation of smears.

5. Material needed

A pathologist and trained personnel in the collection of the specimen is an important ingredient in conducting the investigation. Other items needed are 95% alcohol for fixing of slides, and a jar to contain the specimen.

Over the years various sampling items have been introduced. The traditional wooden Ayrles spatula was initially used but has some limitations as the failure of accessing the endocervix, which is the point of origin of 20% of adenocarcinomas of the cervix. Specimen collections devices include the broom and the endocervical bush (cytobrush) with both having the ability to access the endocervix more than the traditional spatula. The plastic spatula is preferable to the wooden variety because the collected samples are more adherent to the wooden spatula and may be discarded with the spatula after use (Goodman, Hutchinson, 1996.)

5.1. Procedure

Following appropriate counseling of the patient and obtaining informed consent for the procedure, the patient is put in lithotomy position with the cervix exposed using a bivalve speculum. A soft cotton is used to remove any mucous material from the external cervical Os, while taking care not to contact the cervix, a tenaculum is used to grasp the anterior lip of the cervix.The collecting device which could be a spatula is introduced into the internal Os and rotated in 360^0 degree once. The samples collected are smeared on already labeled slide and fixed in 95% alcohol. A four quadrant pap smear of the vaginal walls is advised in patients with history of exposure to diethylstibesterol who are at risk of developing adenosquamous vaginal cancer (Sarina et al 2004)

5.2. Interpretation of results of PAP smear after analysis

The specimen can be categorized as satisfactory or non-satisfactory according to the Bethesda system of reporting of adequacy of smears collected. A satisfactory PAP specimen is that in which the sample collected has a adequate number of squamous epithelial cell, endocervical and representative amount of the transformation zone cell components while an unsatisfactory smear has paucity of epithelial cells poorly preserved or cellular or inflammatory cell that obscure the film.Epithelial cell abnormalities can be classified as:

Atypical squamous cells of undermined significance, low grade squamous intraepithelial lesions (CIN1) and high grade intra epithelial lesions which include carcinoma in-situ, CIN2

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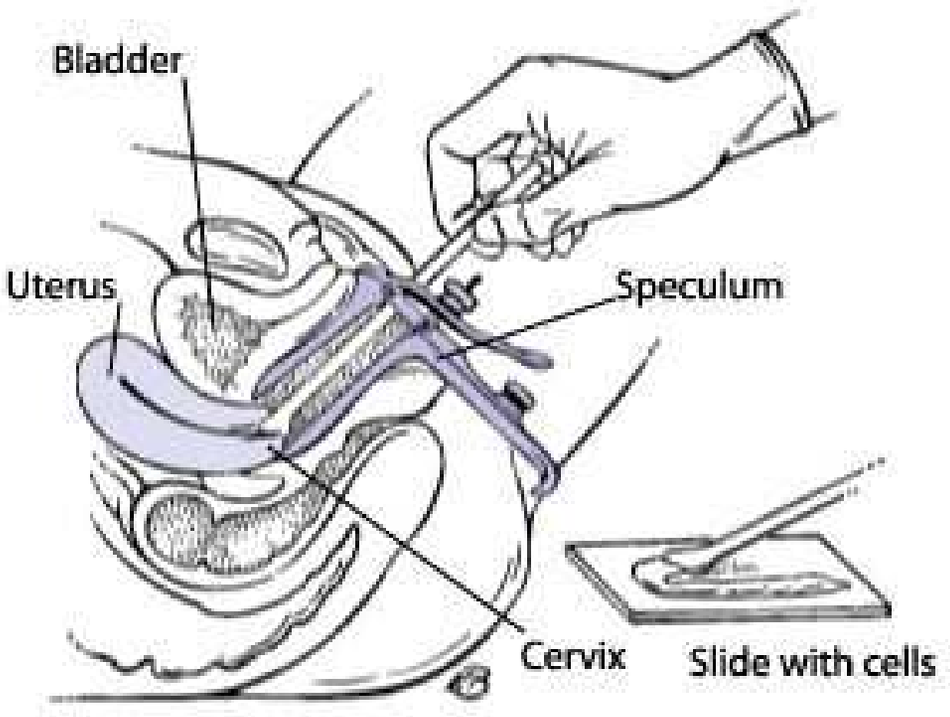

Figure 1. Taking a sample of cells

and CIN3.Other abnormalities include squamous cell abnormalities and glandular cell abnormalities. (Solomom D et al, 2001)

5.3. Limitations of PAP smear

The impact of this screening method has being felt over the years and had contributed to reducing cervical cancer related morbidities, however limitations exist which has affected its utilization. The primary need for a trained pathologist has hampered its utilization especially in the third world with scarcity of trained personnel. Even in the presence of trained personnel the interpretation of morphological alterations in the histological pattern of cervical dysplasia is highly subjective and in the presence of large pool of samples likely to be subject to observer fatigue.The sensitivity of the screening method to identify cervical intraepithelial neoplasia is 51% with a specificity of 98% with increase of sensitivity if interval of screening is made 1-3 years

6. Frequency of PAP smear screening

There are different protocols advocated by different professional bodies and country policies but latest recommended by American College of Obstetricians and Gynecologists (ACOG 2012) low and average risk patients suggest that females should start screening using PAP smear from the age of 21 years and repeating every three years until 29. From the age of 30

years PAP smear alone every three years smear screening alone every 3years with termination of screening at the age of 65 years if still negative. High-risk patients such as off springs of mothers exposed to diethylstilbestrol, immunosuppressed patients, and patients with CIN2 or higher who had been treated are however advised against following the routine screening guidelines for low risk patients.

Patients who had had hysterectomy and had never had any CIN2 or greater can have discontinuation of screening using the Pap smear or HPV testing.

6.1. Liquid based cytology

This method is an innovation to improve the sensitivity of the conventional pap smear where samples are suspended in liquid media, centrifuged to concentrate the exfoliated cells which are subjected thereafter to cytology. The Food and Drug Adminstratio in the USA approved Thinprep and BD Surepath in the years 1996/1999 for the purpose of analyzing cytology samples.

The superiority of this screening method is based on improved cell collection and the random distribution of cells collected which is more representative. This method reduced the proportion of unsatisfactory smears in a study by(Ronco et al, 2007, Arbyn et al 2008) but did not show improved sensitivity instead has a low predictive value to detect CIN 2 and above relative to the traditional Pap smear. A cost analysis also revealed increased cost relative to Pap smear (De Jager et al 2013).

7. Visual inspection using acetic acid

In areas with limited resources a resort to inspection of the cervix have assisted in the screening process without application of acetic acid (unaided). When the cervix is painted with 3-5% Acetic acid it causes reversible coagulation of nuclei proteins and prevention of the penetration of light hence abnormal tissues appearing as “aceto-white areas”. This has been used with good outcome in areas like India and other less developed countries where there are absence of technical manpower such as pathologist to analyze cytology specimens. This method is simple easy to perform, cheap and acceptable by most patients and can be done by nurses, paramedics amongst others and removes the need for histological confirmation. The method enables a one stop treatment of suspected cases of premalignant lesions however there is the danger of overtreatment of postmenopausal patients when this method is applied because of non visualization of the transformation zone. This screening method has similar sensitivity to PAP but lower specificity of 64-79%. Visualization of the cervix can be aided by the use of a X4 magnification glass (Aviscope) and is said to have better sensitivity compared to VIA

7.1. Colposcopy

Following the invention of an optical device by Dr Hans Hinselmenn in 1925, the visualization of the cervix using the colposcope is now an integral part of gynaecological oncology prac-

tice.The method involves direct visualization of the cervix using a colposcopy, which a magnification of the epithelium of the cervix with the aim of identifying abnormal patterns after staining with 3-5% acetic acid under 4-40x magnification. The aim of colposcopy is to examine the transformation zone, which is the origin of cervical cancer. It should not be used as a primary screening tool but used when there is an abnormality in the smear or bleeding.

7.1.1. Colposcopy procedure

With patient in lithotomy position the cervix is exposed using a bivalve speculum allowing macroscopic examination of the cervix. The exposed cervix is subsequently painted with 3-5% acetic acid. This causes a reversible denaturing of the cellular protein the abnormal cells producing the "acetowhite reaction" of cervical intraepithelial neoplasm. The complete visualization of the squamocolumnar junction is important in this procedure because it tells the extent of anomaly of the lesion. Where there is failure of complete visualization of the SCJ the colposcopy is said to be unsatisfactory. Abnormality patterns in colposcopy include: punctuations, mosaicism and abnormal vessels

When colposcopy is used as a screening method for asymptomatic patients it is known to have a poor sensitivity of 34-43%, a specificity of 68% and a positive predictive value of 4-14% hence should not be used a primary screening method for this group of asymptomatic patients (Nidhi G et al 2009).The method of screening is relatively easy to perform with the added advantage of doing it as an office procedure but had the disadvantage of cost of equipment and the time in training a Colposcopist.

7.2. Cervicography

The absence of skilled colposcopist will hamper the use of colposcopy hence in most developing countries the use of the cervicograph have been shown to effectively identify up to 90% of lesions identified by colposcopy. The procedure involves taking two photographs using a specialized camera that develops the slides into 35mm size. Developed images can be subject to comparison from a computerized bank of pictures or reviewed by other colposcopist contacted by possible telemedicine.

7.3. HPV testing

The fact that 99% of cervical cancer is caused by identifiable onocogenic strains of human papilloma virus mainly 16,18 screening for HPV virus is a realistic modality that is currently been used. Ronco et al 2014, demonstrated that screening using HPV testing provided 60-70% greater protection against cervical cancer when compared to the conventional cytology 20% of women will have HPV infection using sensitive technologies such as hybrid capture 2 (HC2), which is a signal amplification test and polymerase chain reaction, which is a target-amplified test. It has a high sensitivity but poor specificity however has a high negative predictive value, which excludes women not likely to have cervical intraepithelial neoplasm. As part of the recommendations of the United States Preventive Service Task Force (USPSTF) screening for

women above the age of 30years can be prolonged to 5years if HPV testing is added to conventional screening (Grade A recommendation)

7.4. Truscan or polarprobe

This is a portable electronic device designed by Polartechnics, Crystalaid microelectronics in Australia, which allows a non-invasive screening for cervical cancer. Its modality of operation involves emission of low voltage electrical impulses when put in contact with the cervix generate real time images of the cervix which is compared with a data base of thousands of colposcopic and cervical biopsy pictures to give a final diagnosis of the optical image generated. This is associated with less pain, removes the challenges encountered in the third world in terms of performance of the conventional Pap smear and is noted to improve compliance to screening in women(Quek et al 1998)

7.5. Ovarian carcinoma screening

Ovarian cancers are the 4th commonest cause of deaths in women in the USA and the Britain with an overall survival of 35% with about 75% of the women universally presenting in advanced stages. This is largely because of none specificity of presentations, absence of a known precursor, and the absence of specific screening test for ovarian cancers. How frequently should patients be screened for ovarian cancers is not specific the NIH in 1994 recommended that all women with a family history of hereditary cancer syndrome should have a yearly screening for ovarian cancer using the available screening methods.

7.6. Biochemical markers for ovarian cancer screening

7.6.1. CA125

CA 125 is one of the biochemical tumor markers known as cancer antigen or carbohydrate Antigen 125. This high molecular glycoprotein was identified using monoclonal antibody OC 125 was discovered by Bast et al in 1980.This modality of screening is nonspecific, which is elevated in 80% of patients with epithelial cancers and about 50% in the stage 1 cancers. It is expressed by all tissues of mullerian origin but not produced by normal ovarian epithelium This has sufficient sensitivity in post menopausal patients since other conditions that will result in a rise in the value of the CA125 such as missed miscarriages, endometriosis, pelvic inflammatory disease and benign molar pregnancy are absent in postmenopausal women with ovarian cancer.

A value of greater than 35umg/ml is considered significant for further evaluation to be done. The specificity of the screening method is about 99.9% with a poor positive predictive value of 26%. The predictive value can however be increased with serial annual CA125 as against a single value.A clinical programme by Skates et al 2003, confirmed that women with serial annual rising level of CA125 are more at risk of developing ovarian cancers than women with steady level (risk of ovarian cancer Algorithm-ROCA).If the risk is greater than 1% the patient

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will need evaluation using transvaginal ultrasound to determine whelter further evaluation is necessary.

7.6.2. Other tumor markers useful in the screening of ovarian malignancies

Urinary gonadotropin peptides are peptides with sequence similar to B subunit of human chorionic gonadotropin and present in 70% of women with epithelial tumours. The presence of an identifiable ovarian tumour by ultrasound, an elevated CA125 and normal urinary gonadotropin peptide are most likely a benign tumor. **Carbohydrate Antigen 19-9 i**s increased in patients' mucinous ovarian tumours but not in epithelial tumours

Carcinoembryonic Antigen (CEA): This is a high molecular weight glycoprotein, which is a good tumour marker for the detection of mucinous ovarian tumours and noted in 90% of mucinous tumours. **Alpha feto protein-**Albumin like protein, which is increased in patients with germ cell tumours except dysgerminonas and teratomas.

Human placentae alkaline phosphatase: This is a glycoprotein molecule which has two sub units and is useful in differentiating germ cell tumours from other ovarian tumors but has the draw back of being expressed by other mullerian structures hence is not specific

Human chorionic gonadotropin: This is elevated in non-gestational choriocarcinoma, embryonal and polyembryomas.

In order to improve the sensitivity and specificity of tumour markers use of multimarkers blood test like oviplex which has the incorporation of five tumour markers (CA125,C reactive protein, serum amyloid A(SAA), interleutin 6 and 8 have been shown to improve the sensitivity y 94% and 91% specificity especially when it concerns early ovarian cancer detection(Edgell et al, 2010).

Following diagnosis and treatment tumor markers like macrophage colony stimulating factor (MCSF) can be used in the follow up of patients which has a high predictive value for persistent disease and is raised in 68% of patients with ovarian cancer.

7.7. Genetic screening

This is based on the background information that 5-10% of women have hereditary genetic predisposition and more than 90% of inherited ovarian tumours occur as a result of genetic mutations in the BRCA1 and BRCA2 genes resulting in chromosomal structure dysfunction and increased risk of malignant transformation. The presence of BRCA 1 and 2 confers 16-90% risk of development of ovarian cancers by the age of 70years as against the 1.7% in the general population ((Brose MS et al 2002,Struewing JP et al 1997). In addition Lancaster et al 2007 also estimated that germline mutation of the above mentioned genes confers a 85% lifetime risk of breast cancer and 46% risk of ovarian cancers. Also mutations in the gene mismatch repair gene MLH, MSH or MSH6 associated with lynch /hereditary non polyposis colorectal cancer have a 9-12% of ovarian cancer and advised in favor of genetic risk assessment which will enable the physician to develop strategies prevent these genetically enabled tumour, provide counseling advice, chemoprevention and prophylactic surgeries for the benefit of the patient.

7.8. Proteomic technology

This enables analysis of cluster patterns produced based on the size and net electrical charge of serum proteins produced by the various tumours. The proteome represents all the possible gene products of the cell and the proteomic technology characterizes all protein in biological system including the complex features. This method increased the sensitivity and specificity by 100 and 95% respectively with a 94% positive predictive valve for ovarian tumours (Angela et al 2013).

7.9. Pelvic examination

It has been advocated that routine pelvic examination should be part of the screening process for ovarian cancers but non-randomized control trial has assessed the role of the bimanual pelvic examination for ovarian cancer screening. In the PLCO cancer trials no case of ovarian cancer was ovarian cancer was identified solely by bimanual examination (USPTF 2012) The American cancer society had advocated pelvic examination for asymptomatic women as one of the methods of screening for ovarian cancer in combination with other screening methods like CA 125 and transvaginal ultrasound scan (ACS 2012).

7.10. Use of ultrasonography

The measurement of the volume of the ovaries has being used in screening of ovarian cancer. Transvaginal ultrasound scan can detect changes in the ovarian size and morphology. The upper limit of ovarian size for premenopausal women was $20cm^3$ and $10cm^3$ for postmenopausal women (Parlik EJ et al). Adding the parameters of cyst wall, characteristics and septation increases the sensitivity to 86% and a specificity of 99% for differentiating benign from malignant lesions(Depriest et al). It is however not recommended for population screening because of its low predictive value and lack of specificity. The combination of colour flow Doppler with transvaginal scan may assist in distinguishing malignant from benign lesions by measurement of the vascular resistance pattern of blood vessels supplying the ovaries

A combination of ultrasound scan, CA125 and menopausal status can be used in calculating the risk of malignancy index for patients and may buttress the need for more vigilance. The risk of malignancy index of greater than 200 connotes a higher risk of malignancy.

RMI=M x C x U (RCOG guideline,2003) where

M: Score of 1=premenopausal, 3=postmenopausal

C: value of the CA125

U: 1=normal scan

1 for each of the following presence of multilocular, bilateral,solid components ascities and metastatic disease with a maximum score of 3

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7.11. Laparoscopy

The presence of the following features at laparoscopy may be suggestive of an ovarian malignancy size of the ovaries, bilaterally, surface excrescence dense adhesions, ascites and peritoneal lesions noted on laparoscopy. A combination of laparoscopy with transvaginal can improve the specificity of these methods but has the risk of tumor spill. This method of screening is expensive in terms of equipment, training of manpower and the surgical risk associated with the procedure for it to be advocated as a screening tool globally.

7.12. Screening for endometrial cancer

There is no known standard recommendation for screening of endometrial cancers and the ACOG consider the process not cost effective and not warranted (ACOG 1997).Despite that there is need for appropriate medical history of menstrual abnormalities and occurrence of postmenopausal bleeding should initiate the need for further evaluation of the patient.The history of tamoxifen use in a patient on hormonal therapy for breast cancer should increase the suspicion of possible endometrial malignancy. Physical examination and subsequent finding of bulky uterus in a postmenopausal patient should arouse the need for additional evaluation. Routine screening using transvaginal or biopsy is not recommended for low risk or average risk patients however in patients with hereditary nonpolyposis colon cancer it is advised that screening be done as a routine from the age of 35 years annually (Birke 1997, Smith 2011)

7.13. Endometrial biopsy/PAP smear

There are different methods of assessment of the endometrial cavity amongst these are fractional curettage of the endometrium where samples are obtained from the uterus in four quadrants and sample send for histology looking out for premalignant lesions of the uterus such as atypical endometrial hyperplasia which is a possible precursor to endometrial cancer

However fractional curettage has the disadvantage of the samples collected not representative of the endometrial tissues. Other methods of collection of samples include vacuum aspiration and hysterscopically directed biopsy of suspicious lesions can also be done

Conventional PAP smear as a screening method for endometrial cancer is not advised since 50% of patients with endometrial cancer will have normal results (Gu, 2001) but improved specificity can be achieved if liquid based cytology is used in detecting glandular lesions

7.14. Ultrasound scan

This assesses the endometrial thickness using transvaginal ultrasound scan can be helpful in screening of patients with endometrial pathology. An endometrial thickness of 5mm has a high sensitivity and specificity for detecting endometrial pathology and a higher negative predictive value of about 100%(Smith –Bindman et at 1998)

8. Screening for vaginal/vulva cancers

Vulva and vaginal cancers account for 7% and 2% of all gynaecological cancers in the United Kingdom in with 80% of them been squamous cell carcinoma and 60% of vulva and 68% of vaginal cancers occur in developing countries (WHO 2009). In Nigeria cancers of the vulva and vagina constitute 1.3% and 1.4% of all gynaecological cancers (Clement et al 2013). It is worthy of note that 40 % of all vulva and vagina cancers are attributed to Human Papilloma virus in the United States of America with HPV 16 the main aetiological agent (Wu X et al 2008,Saraiya et al 2008). In developing countries like Nigeria HPV 16 and 36 have been identified in most cases of vaginal /vulva cancer (Thomas et al). This identification of this etiological agents makes one of the modalities of screening HPV genotype screening a possibility in addition visual inspection with acetic acid for vulva lesions. However there is no consensus on the modality of screening of vaginal and vulva lesions but it is advised that careful examination of vulva/perineal lesions must be undertaken and a biopsy of suspicious lesions taken. Despite the absence of supporting data e expert opinion recommend that annual visual inspection for vulva/vaginal lesions can be undertaken as part of the screening(Crum CP, 1992)

9. Geographical variations in screening programmes in gynaecological cancer

Screening of gynaecological cancers is largely dependent on the cancer burden in the respective country with each country strategizing to reduce the burden. Before the 1940s there was a notable rise in the incidence and mortality associated with cancer such as cervical cancer necessitating the organization of organized screening programmes especially in the `Nordic countries which were largely nationwide and population based resulting in a near nation wide coverage. This was largely achieved by the direction of national resources aided by well-formulated policies by the respective Governments with resounding achievements.

Converse is the case in developing countries with limited resources competing for numerous challenges. The screening programmes of countries are largely opportunistic, poorly organized and not entered on national coverage of the population. The obvious lack of political will on the part of the various Governments has also compounded this problem. Most times screening programmes in these countries are cost driven With governments relying on methods that are relatively less expensive though not necessarily ideal screening methods. The absence of suitable manpower to handle more complex screening methods make such methods unavailable for generality of the population. Thus screening for cervical cancer in developing are usually based on the traditional cytology using the spatula with its drawbacks already highlighted as opposed to liquid based cytology. Less expensive methods for screening such as VIA and cervicography are also used to meet up with the challenges of the draught of the challenges of the draught of histopathologist to analyse samples collected. The absence of histopathologists puts a lot on pressure on already burdened histopathologists resulting in

delays of screening results with a back lash on the patients zeal for further follow up in subsequent appointments. The lack of information on credible treatment plans for those diagnosed is also as rate limiting step in achieving national coverage in most of these countries.

10. Conclusion

Gynaecological cancer screening have been shown over the years to be life saving as exemplified by the have shown over the years to be life saving as exemplified by the experience of the Nordic countries as regard cervical cancer where the traditional PAP smears had been used with resounding success reducing incidence and mortality. Same can not be said of other gynaecological cancers were there is currently no consensus on the ideal screening tool. The use of tumour markers like CA 125 solely had not been shown to be good screening tool hence the need for multimodal approach in dealing with ovarian tumours with some still in clinical trials hence the need for the multimodal means for screening for ovarian cancer with some still in the clinical trial phase.

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