THE PREVALENCE OF INFERTILITY AND ITS PREVENTIVE MEASURES IN SUB-SAHARAN AFRICA

By: Prof. R.J.I. LEKE

PRESENTATION AT THE W.H.O, AFRO AND EMRO REGIONAL MANAGEMENT OF INFERTILITY WORKSHOP

PLAN:

- Introduction
- Types of infertility
- Aetiological factors of infertility
- Socio-economic and cultural factors influencing fertility
- The prevalence of infertility in sub-Saharan Africa
- The diagnosis of infertility
- Principles of treatment of infertility: Preventive measures
DEFINITION OF INFERTILITY

Infertility applies to couples who fail to achieve a pregnancy after 1 year of regular coitus without any contraception.
COUNTRIES WITHIN THE AFRICAN LOW FERTILITY BELT

- Cameroon
- Central African Republic
- Gabon
- Zaire
- Togo
- Tanzania
- Sudan
- Kenya
FERTILITY AND DURATION OF MARRIAGE FOR COUPLES WITHOUT CONTRACEPTION (3)

- 25% of pregnancies occur within 1 month
- >60% of pregnancies occur within 6 months
- 75% of pregnancies occur within 9 months
- 80% of pregnancies occur within 12 months
- 90% of pregnancies occur within 18 months
### AGE OF WOMAN AND PERCENTAGE OF INFERTILITY AND CHILDLESSNESS (3b)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>20-24</td>
<td>7.0</td>
<td>5.7</td>
<td>4.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td>8.9</td>
<td>9.3</td>
<td>9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>14.6</td>
<td>15.5</td>
<td>16.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td>21.9</td>
<td>29.6</td>
<td>25.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td>28.9</td>
<td>63.6</td>
<td>62.2</td>
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</tr>
</tbody>
</table>

* An average calculated from three national surveys in 1965, 1976 and 1982

** Percent childless at age 50 among those marrying in various five-year age groups; data drawn from healthy historical populations with little or no practice of fertility limitation and in which late marriage was common and usually not preceded by premarital conceptions.
TYPES OF INFERTILITY IN CAMEROON (4)

1) Primary Infertility 40%

2) Secondary Infertility 60%
PREVALENCE DE L’INFERTILITÉ (4a)

- Infertilité est un problème mondial
- Incidence globale est environ 10%
- Incidence en Afrique sub saharienne est d’environ 15%
- Infertilité secondaire constitue 60% et infertilité primaire environ 40% en Afrique
REQUIREMENTS FOR FERTILITY
(4b)

The properties of the fecund male include:

1) Normal spermatogenesis and ductal system (normal count, motility, and biologic structure/function

2) Ability to transmit the spermatozoa to the female vagina, through:
   - Adequate sexual drive
   - Ability to maintain an erection
   - Ability to achieve a normal ejaculation
   - Placement of ejaculate in the vaginal vault
The properties of the fecund female include:

1) Adequate sexual drive and sexual function to permit coitus

2) Functioning reproductive anatomy and physiology which includes:
   - A vagina capable of receiving spermatozoa
   - Normal cervical mucus to allow passage of spermatozoa to the upper genital tract
   - Ovulatory cycles
   - Fallopian tubes which will function to permit the sperm and ovum to meet and allow migration of the conceptus to the uterus
   - A uterus capable of developing and sustaining the conceptus to maturity
   - Adequate hormonal status to maintain pregnancy

3) Normal immunologic responses to accommodate sperm, conceptus, and fetal survival.

4) Adequate nutritional, chemical, and health status to maintain nutrition and oxygenation of placenta and fetus
REQUIREMENTS FOR FERTILITY (4d)

- Male must produce and mature satisfactory numbers of normal motile spermatozoa.
- He must have patent ducts and enough potency to ejaculate spermatozoa from urethra into the vagina.
- Spermatozoa must reach the cervix, pass through the cervical mucus and ascend through uterus and oviduct at an appropriate time to meet the ovum.
- Spermatozoa must be capable of penetrating and fertilising the ovum.
- The female must ovulate an ovum which has access to a patent oviduct.
- The fertilised ovum must enter into the uterus, find well prepared endometrium for implantation.

**NB:** Complex series of events requiring integrity of several structures and organs, if not then infertility.
CONDITIONS NECESSAIRES POUR LA GROSSESSE (4d)

- Le mâle doit produire et maturer un nombre satisfaisant des spermatozoïdes normaux et mobiles
- Il doit posséder les canaux normaux et la puissance d'éjaculation des spermatozoïdes de l'urètre au vagin
- Les spermatozoïdes doivent atteindre le col, traverser la muqueuse cervicale et monter dans l'endomètre et atteindre le trompes
- Les spermatozoïdes doivent pénétrer et fertiliser l'ovule
- La femelle doit ovuler et l'ovule doit accéder le tiers externe de la trompe perméable
- L'ovule fécondé doit atteindre l'utérus et nider dans un endomètre préparé pour la nidation

NB: Système complexe exigeant l'intégrité de plusieurs structures et organes si non alors infertilité
TYPES OF STUDIES IN INFERTILITY (5)

- Clinical studies
- Epidemiological studies
- Infertility surveys
- Demographic surveys
FACTORS AFFECTING PREVALENCE OF INFERTILITY (6)

- Socio-cultural factors ex. Taboos, cultural practices
- Ethnic and Regional Variations
- Sexually Transmitted Infections (STI)
- Post partum and post abortal infections
- Age of the partners
- Technological advances in reproductive health
- Frequency of sexual intercourse
- Duration of cohabitation without contraception
- Abnormal genital organs
CAUSES OF MALE INFERTILITY

1. Abnormal spermatogenesis
2. Testicular Disease
3. Tumours / Varicoceles
4. Medication
5. Cryptorchidism
6. Blocked canals
7. Pubertal Mumps
8. Filariasis
### Causes of Infertility in Men (Nigeria)

<table>
<thead>
<tr>
<th>Condition</th>
<th>No</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypoplasia Testis</td>
<td>26</td>
<td>58</td>
</tr>
<tr>
<td>Cysts of the epididymis</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Cryptorchidia</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Varicocele</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Hydrocele</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Inguinal Operations</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>45</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
## GENERAL CATEGORIES OF INFERTILITY: GLOBAL PATTERNS

<table>
<thead>
<tr>
<th>Category</th>
<th>Developed Nations</th>
<th>Africa</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of infertility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>71</td>
<td>48</td>
<td>72</td>
</tr>
<tr>
<td>Secondary</td>
<td>29</td>
<td>52</td>
<td>28</td>
</tr>
<tr>
<td>No cause found in either</td>
<td>14</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Female causes only</td>
<td>31</td>
<td>37</td>
<td>45</td>
</tr>
<tr>
<td>Male causes only</td>
<td>22</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Causes found in both</td>
<td>21</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Became pregnant</td>
<td>12</td>
<td>15</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: WHO (1986)
PREVALENCE RATES OF INFERTILITY: (CAMEROON) (10)

- North & Extreme North Provinces: 28.4%
- Centre Province: 28.1%
- Eastern Province: 18.6%
- North West Province: 13%
- South West Province: 15%
### INFERTILITY IN TWO DISTRICTS IN UGANDA

**Characteristics studied**

<table>
<thead>
<tr>
<th></th>
<th>Tes 0 District (Low fertility) %</th>
<th>Anlcole District (High fertility) %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FEMALE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married more than once</td>
<td>32.7</td>
<td>9.6</td>
</tr>
<tr>
<td>Never pregnant before</td>
<td>19.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Lower abdominal pain</td>
<td>25</td>
<td>8.9</td>
</tr>
<tr>
<td>Cervicitis</td>
<td>30.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Identified gonorrhoea</td>
<td>18.3</td>
<td>2.4</td>
</tr>
<tr>
<td>VDRL positive</td>
<td>25.3</td>
<td>12.6</td>
</tr>
<tr>
<td><strong>MALE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>85.5</td>
<td>82.6</td>
</tr>
<tr>
<td>Polygamous men</td>
<td>25.5</td>
<td>23.3</td>
</tr>
<tr>
<td>Never had a child</td>
<td>24.8</td>
<td>3.7</td>
</tr>
<tr>
<td>Already had urethral discharge</td>
<td>55.6</td>
<td>10.8</td>
</tr>
<tr>
<td>Has urethral discharge</td>
<td>9.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Epididymis thickening</td>
<td>27.9</td>
<td>4.3</td>
</tr>
<tr>
<td>VDRL positive</td>
<td>38.8</td>
<td>15.5</td>
</tr>
<tr>
<td>Six children or more</td>
<td>20.2</td>
<td>50</td>
</tr>
</tbody>
</table>
# Proportional Distribution of Causes of Male and Female Infertility in the USA and Nigeria

(12)

<table>
<thead>
<tr>
<th>Male Infertility</th>
<th>US Data %</th>
<th>Female Infertility</th>
<th>US Data %</th>
<th>Nigeria Data %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicocele</td>
<td>25</td>
<td>Tubal/Peritoneal</td>
<td>30</td>
<td>66</td>
</tr>
<tr>
<td>Vas deferens obstr.</td>
<td>7</td>
<td>Ovarian</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Other causes</td>
<td></td>
<td>Cervical</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uterine</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other factors</td>
<td>25</td>
<td>7</td>
</tr>
</tbody>
</table>
JUSTIFICATION FOR PREVENTIVE MEASURES AS A PRIORITY APPROACH (13)

- Treatment very expensive and inaccessible to most couples in need
- Absence of specific objectives, priorities and strategies for infertility care
- Absence of reliable data and good follow up
- Lack of integration of infertility services into reproductive health services
- Lack of coordination of health care system
- Lack of accurate targeting of the risk groups for infertility
- Insufficient training and research in infertility
PREVENTION OF INFERTILITY (14)

- Up to date knowledge of treatment of all STI and PID
- Contraception choice influences the risk of PID and infertility
- Education on treatment and control of STI especially in young people
- Education of the community to ensure that all individuals have access to treatment of STIs
- Encouragement of abstinence or condom use for sexually active young people. Avoid IUD in these cases of youth.
OBJECTIVES OF STI CONTROL
* Interrupt transmission of the infection
* Prevent development of complications and sequelae

SPECIFIC OBJECTIVES:
* Reduce exposure to infections by education of risk persons
* Prevent transmission of infection through use of condoms / other barriers
* Ensure adequate diagnostic and treatment facilities
* Limit complications and subsequent transmission by early treatment and control and by counselling
TEN IMPORTANT FACTS TO PROTECT FERTILITY (16)

- Avoid having **multiple** sexual partners
- Avoid **pre marital** sex leading to unwanted pregnancy and abortion
- Avoid **poorly** treated sexually transmitted infections
- Avoid **intra uterine device** in adolescents and youth
- Correct **undescended** testes of male infants
- Vaccinate children with mumps, measles and rubella vaccine
- Avoid **unhealthy habits** (smoking and drugs)
- Prepare pregnancy by improving **pregnancy knowledge** and regular prenatal checks
- Be aware that female fertility declines sharply after **35 years** of age
CONSTRAINTS TO PREVENTION OF INFERTILITY

(17)

- Lack of understanding on the magnitude, causes, distribution and impact of infertility
- Poor planning and organisation with respect to goals, priorities and prevention strategies in infertility
- Lack of political will, commitment and support
- Lack of understanding of community attitudes, beliefs and practices regarding infertility
- Lack of an integrated approach to infertility care
- Lack of training of health staff for infertility prevention and management
- Lack of functional referral system with well defined responsibility of each level of health care
- Lack of norms and protocols for prevention and management of infertility