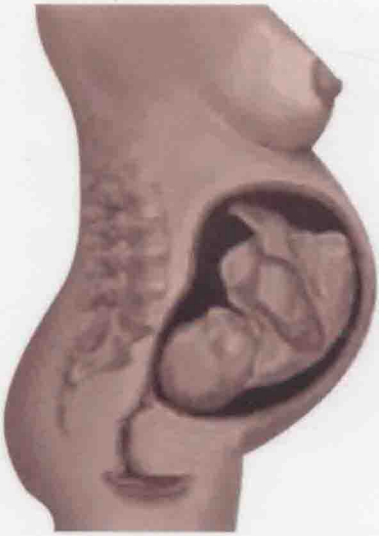
The Infertile Couple And Modern Cost-effective Management



With Special Emphasis for Resource-Poor Developing Countries

Dr. Norbert I. Ekeh MD

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THE INFERTILE COUPLE AND MODERN COST-EFFECTIVE MANAGEMENT

To my parents, Sir and Mrs. Jo Ekeh, KSM, for all their love, dedication, and encouragements even in their very old age

Foreword

This concise, well-illustrated, and well-referenced textbook written by Dr. Norbert I. Ekeh MD has provided a comprehensive and an up-to-date modern infertility management not only for all health care practitioners in the field but also for the couple and clients who are keen to learn all they could about their condition as well as health care administrators.

The list of abbreviations at the beginning of the book as well as the glossary/definitions at the end would help those with minimal medical terminologies understand and enjoy their read of the text. The chapter on potential effective and low-cost ART for resource-poor countries is a challenge even for us in the so-called developed economies. The ethical dimensions, especially the Catholic objection to modern IVF treatment, are not treated lightly. All facets of modern infertility treatment are expertly treated and referenced from timed intercourse to more complex and modern issues such as surrogacy, acupuncture, and medical tourism in infertility treatment.

Having worked closely with Dr. Ekeh in this exciting field of modern infertility management for over ten years now, I confess that this book is a must read for all in the field, clinicians and clients alike. I would also dare recommend it for all health care planners, especially those in resource-poor countries.

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Preface

The idea for this book is borne out of a combination of observations and events happening in my life over the past few years. It all started with a casual observation during one of my visits to my home country, Nigeria, of an apparent 'explosion' in infertile couples seeking 'divine intervention' to their problems. It also occurred to me that while my parents' generation often appeared to have had an average of six to 7 children, my own generation seems to be whittled down to only about three children per family but most importantly, there are many couples seemingly unable to have any child. I then decided to do something about this by a firm decision to return to Nigeria to practice solely as a fertility specialist. I resigned my job as an Obstetrician/ Gynaecologist to concentrate on infertility while studying for a masters' degree course in Clinical Embryology on a part time basis from the University of Leeds, UK. While doing my research project for this master's degree, I chose to pursue my interest at the provision of cheap and effective Assisted Reproductive Technology (ART) treatments in modern infertility management including potential cheap alternatives. With the successful completion of my research project, this is an attempt at putting down in a book all available modern effective infertility treatment strategies in terms of low-tech and high-tech fertility treatments as well as potential low-cost and effective treatment strategies detailed in chapter 5, some of which are not yet clinically applicable. It is hoped that this book will help stimulate research in some of these innovative approach for the benefit of all including the infertile in resource-poor countries.

Acknowledgments

I wish to express my deep appreciation of the encouragements by my lecturers at the University of Leeds for all their encouragements during my MSc research project, which kick-started this book. My special thanks go to my head of department, Professor Helen Picton, as well as doctors David Miller and John Huntriss for all their support during my project that metamorphosed into this book.

I wish also to acknowledge the best efforts of fertility clinicians including gynecologists, embryologists, and all who practice assisted reproductive techniques (ART) in resource-poor countries of the world. The challenge is the provision of the effective modern ART in the context of poor infrastructure (especially electricity and water) and at an affordable price!

Finally, I wish to thank God almighty for enabling me to father my two extremely intelligent and lovely children, Odera and Nwadi.

List of Abbreviations

AH	assisted hatching
AI	artificial insemination
AMH	anti-Müllerian hormone
ART	advanced reproductive technology
ASRM	American Society for Reproductive Medicine
BCP	birth control pills
CC	clomiphene citrate
CCCT	clomiphene citrate challenge test
CO2	carbon dioxide
CASA	computer-assisted semen analysis
DI	donor sperm insemination
DHEA	dehydroepiandrosterone
DNA	deoxyribonucleic acid
E2	estradiol
ER	egg retrieval
ESHRE	European Society for Human Reproduction and Embryology

ET	embryo transfer
FET	frozen embryo transfers
FSH	follicle-stimulating hormone
FSP	fallopian tube sperm perfusion
GA	general anesthesia
GH	growth hormone
Gn	gonadotropin
GnRH-a	gonadotropin-releasing hormone agonist
GnRH-A	gonadotropin-releasing hormone antagonist
High Tech	high technologically intensive
hMG	human menopausal gonadotropin
HSG	hysterosalpingogram
Hx	history
ICI	intracervical insemination
ICSI	intracytoplasmic sperm injection
ICU	intensive care unit
IFI	intrafallopian insemination
ITI	intratubal insemination
IUC	intrauterine culture
IUI	intrauterine insemination
IUTP	intrauterine tuboperitoneal insemination

IVC	intravaginal culture
IVF	in vitro fertilization
IVI	intravaginal insemination
IUL	intrauterine life
IVM	in vitro maturation
LH	luteinizing hormone
Low Tech	low technologically intensive
LPD	luteal phase defect
MAR test	mixed antiglobulin reaction test
MESA	microscopic epididymal sperm aspiration
NSAIDs	nonsteroidal anti-inflammatory drugs
OATS	oligoasthenoteratozoospermia
OHSS	ovarian hyperstimulation syndrome
PCT	postcoital test
PE	physical examination
PESA	percutaneous epididymal sperm aspiration
PGD	preimplantation genetic diagnosis
PG	prostaglandin
PID	pelvic inflammatory disease
POF	premature ovarian failure
PZD	partial zona dissection

RBC	red blood cells
ROS	reactive oxygen species
Rx	treatment
SA	semen analysis
SIFT	sperm intrafallopian transfer
SLE	systemic lupus erythematosus
Sono HSG	sonographic hysterosalpingogram
STD	sexually transmitted disease
SZI	subzonal sperm injection
TB	tuberculosis
TESA	testicular sperm aspiration
TESE	testicular sperm extraction
US	ultrasound
USA	United States of America
WBC	white blood cells or leukocytes
WHO	World Health Organization
ZP	zona pellucida

Introduction

When Rachel saw that she was not bearing Jacob any children, she became jealous of her sister. So she said to Jacob, "Give me children, or I'll die!"

The Holy Bible-Genesis 30:1

I feel very confused, afraid and have lots of unanswered questions . . . . 'I felt terrible and alone . . . . with guilt and shame wondering why me? . . . . what have I done to deserve this . . . . I developed low self esteem wondering whether my husband, friends and family would accept me . . . . . or divorce me . . . . at same time, I am easily irritated and angry, even at listening to well-intentioned advice . . . .

The infertile

As the above quotes indicate, the personal devastation and distress experienced by individuals and couples with inability to establish a desired family unit has been documented in all cultures since the beginning of recorded time (Parnell T, 2005). In recent times, the USA Supreme Court in affirming lower court decisions of infertility being a disability defined the ability to conceive as a basic life activity (Gleicher N, 1998). But this disability and personal tragedy being experienced all over the world are further compounded for the infertile women in the resource-poor developing countries like Nigeria where these women have been documented with a far reaching continuum of consequences ranging from blame, guilt, fear, social isolation/alienation, increased violence, divorce, polygamy to even murder being perpetrated on them; also there is increased exposure to multiple sexual partners and STDs as well as helplessness, economic destitution and suicide on their own (Araoye MO, 2003; Boerma JT et al, 2001). And implications have been extrapolated for neonatal and maternal morbidity/mortality (Joffe M et al, 1994, Basso O et al, 2003; Basso O et al, 2005).

Furthermore, motherhood in the developing nations is often perceived as a way to enhance the woman's status within the family unit and unto the wider community at large. As such, these women are often willing to undertake whatever it takes to achieve

motherhood. But proven modern fertility care and treatments are either not readily available, accessible and/or expensive and therefore not within reach for most of these women who are then driven to consult alternative traditional or faith-based healers, using traditional herbs and/or beliefs some of which could be very bizarre such as being 'bewitched' by jealous neighbours, co-wives or mother-in laws, being 'possessed' by evil spirits or bad ancestral spirits, etc!

There are also harsh economic realities with respect to infertility in developing countries. In the absence of social security provisions as in most developed economies and without their own children, many men and women may starve to death especially in their old age! In some communities, the infertile are perceived to be the source of evil in the community and then ostracized or made objects of shame and humiliation and, or denying them proper burial rites, etc.

Therefore, infertility in resource-poor developing countries of the world poses a myriad of complex and rather unique problems far and above those well documented for the developed nations by rather being transformed from an acute, private agonizing condition as usually observed in most developed nations into a harsh, public stigmatised condition with the continuum of evolving complex and devastating consequences alluded to above.

The WHO has earlier defined health as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity' By this definition, infertility is therefore, a disease condition. And in fact, it could be argued that fewer disease conditions could wreck as much profound and pervasive effects on individuals' and families' well-being as a whole than infertility. In this regards, infertility has been compared to cancer!

But some have argued that over-population should rather be the major issue facing most of the resource-poor developing countries such that family planning and contraception should be the main focus rather than infertility management. Others further argued that these countries with poor resources and infrastructure are saturated with high prevalence of many communicable and preventable diseases such as tuberculosis, malaria, HIV/AIDS, typhoid disease, diarrhoeal infectious diseases, helminthiasis, etc. All theses arguments are simply not tenable. Take for instance the HIV/AIDS. If it justifiable to provide the very expensive medication cocktail needed to treat such a condition in these poor countries which then prolong the lives of all those treated, would this also not have on 'over-population' effect by enabling more people living with this condition rather than having died with full blown AIDS? As such, why would treating infertility, even with the expensive ART equipments not be reasonable justified in these poor resource countries? Some reason that the aged-old dictum, "prevention is always better than cure" should be the goal rather treating the infertile. Of course so is with all known ailments including the densely prevalent communicable diseases already mentioned above! Ideally and if possible, all diseases and illnesses should rather be prevented such that there would not be any need to treat. Unfortunately this

is not only feasible but also impossible to achieve medically as there would always be the need to treat diseases. Some others have gone further narrowing their arguments only against the introduction of modern effective but expensive infertility treatments currently widely available in developed countries (Okonofua FE, 1996), although with recent successful application of these treatment options in some private infertility clinics/ hospitals in Nigeria, the arguments seem to be waning in favour of these new private initiatives (Okonofua FE, 2003). Still some argue that adoption should be the norm for the infertile considering the numerous poor and, or orphaned children in resource-poor developing countries but again, this is not feasible practically. Moreover, anecdotal evidence indicates that there are still many cultural biases against adoption in most developing countries.

Therefore, the idea that modern infertility treatments including the expensive ART which has been established to be very effective in the modern management of the 'few' with infertility should not be a health priority in resource poor countries is based on the above fallacious assumptions while at same time, there is the utter disregard of the devastating and potential life-threatening consequences already outlined above.

It is also important to highlight that tubal diseases is the underlying cause of most cases of female infertility seen in consultation in sub Sahara Africa. This is in contradistinction to tubal causes seen in the more affluent developed countries (35% v 85% in Africa; Gates W et al, 1985). It then stands to reason that every effort should be made to make IVF (the main core ART, which was originally conceptualized to by-pass tubal diseases) as widely available as possible to the infertile in these resource-poor countries rather than the current very limited access when compared to the developed nations.

This book aims to provide a unique perspective on modern and effective infertility management for all healthcare providers who may come in contact with the infertile couples, the patients themselves as well health policy administrators especially all those in resource-poor countries of the world. It is my firm belief that a diagnosis of infertility in today's world should not be synonymous with childlessness for any couple irrespective of their country of residence or their financial capability because the currently available modern infertility treatments offer a good rate of success. The challenge therefore, is provision of these modern effective treatments at an affordable cost to all i.e., cost-effective modern infertility treatments to all, irrespective of the couple's location in this wide world! The need for cheap ART or effective alternatives cannot therefore be over-emphasized. The race is on!

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