

Reproductive Health at the Turn of the Millennium: A Periscopic View of the Future

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Abstract

After the tremendous changes in reproductive health care that occurred in the last century, it is a distinctly challenging task to try and predict what may lie beyond the horizon in the discipline. While recognising the roles of all stakeholders in the field of reproductive health, obstetricians and gynaecologists have a unique task in the provision of reproductive health care because pregnancy and childbirth are at the very core of the reproductive process. Gynaecologists also tend disorders of the female genital tract that may compromise this instinctual activity. The various sub-specialities of gynaecology that have evolved to deal with these health problems can be expected to develop further in the coming decades. With increasing super-specialisation, rapid advances can be expected. Hopefully, the humanity of specialists in the discipline will always take precedence over the application of scientific advances.

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In line with the main objectives stated in the first of these twin articles on advances in reproductive health care¹, the focus of this communication is to provide an overview of the innovations occurring in the discipline. The first article dwelt on the familiar: an account of what had transpired in the past. This follow-up paper attempts to undertake the infinitely more perilous task of trying to discern what may be on the horizon of medical knowledge and practice in the area of reproductive health over the next few decades. The major focus will, of course, be on the discipline of Obstetrics and Gynaecology

Specialisation

One of the major developments in Obstetrics & Gynaecology in the twentieth century is the evolution of sub-specialties in the discipline. The first three major subdivisions to emerge were

- Maternal & Fetal Medicine (Perinatology)
- Infertility & Reproductive Endocrinology
- Gynaecological Oncology.

Since their emergence, other specialised areas have continued to develop. Thus, there are now established branches of care in Contraception, Gynaecological Urology and Reproductive Genetics. Fetal Therapy, Assisted Reproduction and Preventive Oncology are some of the fledgling areas that are candidates for becoming fully recognised sub-specialties in the foreseeable future.

Reproductive genetics merits special mention. Genetics as a whole has come to the fore of new developments in medical science in the past couple of decades. The entire human genome has now been

mapped. Whole new disciplines and techniques such as genomics, molecular biology and recombinant DNA technology have evolved along with the endeavour. Molecular genetics is now at the very core of new curricula in forward-looking medical schools and practitioners in the next few decades must have a thorough grounding in the subject in order to be able to practice gene therapy which seems set to dominate medical practice in the not-too-distant future.

New Developments

Even as practitioners are acquiring specialist training in these new super-specialties, consideration must be given to how the new knowledge is likely to affect practice. A few of the major changes that could enter the landscape of medical practice in future are mentioned below.

Concept of Preconception Care: The concept of providing specialised care for women with chronic medical conditions who are, at the same time, trying to achieve pregnancy has gained acceptance over the last decade. It is, however, yet to become the norm. I believe that the Obstetric establishment will soon see the wisdom of incorporating this fourth component into their standard maternity care service package.

Fetal Therapy:

Fetal Therapists are already exploring new ways of administering medication to the fetus *in-utero* (either directly, or indirectly through the mother) to improve the chances of perinatal survival. Surgical correction of some congenital defects while the baby is still in the womb is already being practiced with the aid of

fetoscopy, and fetal surgery is likely to become a routine procedure in the future.

Cloning and Stem Cell Research: Research activities in the areas of assisted conception, cell biology and genomics have brought the notion of cloning whole organisms to the fore. Mammals have now been cloned and it is only a matter of time before the first human clone is born, in spite of the ethical clouds hovering the whole concept. One can only hope that common sense and decency will override all else in the application of this technology.

Stem cells are totipotential cells usually derived from embryos at an early stage in their development. The cells generally have low immunogenicity and they can be steered toward developing into any of a number of different mature tissues in the body. They offer a way out in the treatment of several chronic debilitating diseases in humans, including Parkinsonism and some cancers. The major ethical issue involved with their use now is the fact that the embryos from which they are derived get destroyed in the process of their extraction. The resolution of this problem will require continuous dialogue involving health care providers, scientists, ethicists, religious leaders and the community at large

Contraceptive Technology: This is an area likely to witness significant change between now and 2025. One can reasonably expect that reversible methods of male contraception will become available during that period. In an effort to improve ease of use, it is conceivable that patches could be developed that can effectively deliver hormonal contraceptives through the skin so that women can avoid the inconvenience of injections and the insertion of implants. The advances that have been made in the study of periconceptional immunology also make it almost certain that some form or other of a 'contraceptive vaccine' will be available in the next couple of decades.

Uterine Fibroids: One condition that must not escape mention is uterine leiomyoma, which is the commonest tumour of the reproductive tract in women of African descent. There had not been much cause for cheer in therapeutic developments in the past in that while several new treatment modalities have been tried, none has been the breakthrough most gynaecologists are looking forward to. Major surgery still remains the cornerstone of treatment except in a few instances when small growths can be resected through the hysteroscope or the laparoscope. Some other methods that are being tried include selective embolisation of the vessels supplying the

fibroids, effectively strangulating them. All these methods have significant drawbacks. Less invasive, effective, permanent methods of dealing with the problem may be on the horizon.

Reproductive Tract Cancer: Cervical cancer and its precursor, cervical intraepithelial neoplasia (CIN), remain the commonest problems in this area. The evidence that the most common variety of the disease is caused by the human papilloma virus (HPV) is almost overwhelming². Field trials of vaccines against HPV should soon commence and it is not overly optimistic to expect that if the vaccines are effective and they are made available to those at risk, cervical cancer may lose its pre-eminence as the commonest malignancy of the female genital tract in women living in Nigeria and other tropical countries.

Genetic screening for ovarian cancer may give the concept of screening for this deadly disease a new lease of life. Identification of specific oncogenes that promote the growth of genital tumours and the development of therapeutic strategies against their molecular effects is almost within reach. And we can dream about gene therapy for the treatment of genital malignancies that is much more effective and has fewer unwanted effects than what is currently available.

Conclusion

While the developments of the twentieth century were indeed breathtaking, and we are contemplating even more momentous changes in medical knowledge in the twenty-first, it is important to bear in mind that the goal of Obstetrics and Gynaecology [as the mission statement of the International Federation of Gynaecology and Obstetrics (FIGO) boldly declares] is 'to promote the health and well-being of women'³. All the new knowledge and all the scientific advances will ultimately be to no avail in fulfilling this mission unless those who put the information to use in medical practice and health care delivery are, first and foremost, ethical beings who always make the best interest of the patient the top priority.

References

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