Recent Advances in Hormonal Contraceptives for Women

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ABSTRACT: Currently, Contraceptive agents play a key role in family planning in India. Hormonal contraception is the marketed most common birth control option in women. An estimated 100 million women throughout the world use hormonal contraceptives for prevention of pregnancy. This article briefly describes the recent advances in hormonal contraceptive strategies that may minimize side effects while optimizing effective contraception. There are four types of hormonal contraceptive agents available for birth control. They include oral contraceptives pills (combined and mini-pills), contraceptive patches, hormonal implants, intrauterine devices and hormone injection agents. Oral contraceptives (OCs) are among the most widely used agents because they are highly effective when used properly. Generally, OCs are designed to simulate the 28 days of the menstrual cycle by daily intake of steroid hormones consisting of an estrogen and/or a progesterone. The primary mechanism underlying OC action is inhibition of ovulation. This action is achieved using a variety of OCs with substantially different components, doses, and side effect profile. Two types of OC pills are widely available: combination pills; and progesterone only pills. The combined daily OC pill is composed of low dose of synthetic estrogen and progesterone. They are usually taken for 21 days with a 7 day gap during which menstruation-like bleeding occurs. Recently, there are several new OCs that have been approved to minimize the frequency and/or extent of breakthrough bleeding while achieving reliable means of contraception for the avoidance of unplanned pregnancies.

KEY WORDS: Oral contraceptives, estrogen, progesterone, birth control, drug interactions, epilepsy

Introduction

Contraceptive management in women is critical for family planning and the prevention of unplanned pregnancies. Oral contraceptives (the “pill”) were introduced more than 40 years ago, and presently they are the most popular method of preventing unwanted pregnancy. An estimated 15 million women in the United States and 100 million women throughout the world use hormonal contraceptives (Hatcher and Nelson, 2004). In India, contraceptives have proven to be most important method for family planning and also as dominant tools in population control by avoidance of unplanned pregnancies. Despite the availability of over 50 hormonal contraceptive products, there are very few guidelines for their effective use for birth control purposes. Standard guidelines for women with various backgrounds and health status should be considered as key points for achieving effective use of contraception methods. In order to ensure adequate efficacy and safety of both classes of drugs, health practitioners prescribing contraceptives must be aware of various conventional and newer preparations, potential benefits and risks, potential interactions between hormone contraceptives and other drugs. The objective of this article is to describe the clinical pharmacology of hormonal contraceptives and recent advances in contraceptive preparations that are designed for effective contraception while minimizing side effects in women.

Hormonal Contraceptives

There are two distinct categories of birth control options for women: hormonal and non-hormonal methods (Crawford, 2003; Oakeley, 2004). Non-hormonal contraceptive methods include barrier methods such as diaphragms, cervical caps, and the rhythm method. Most barrier methods provide protection against HIV infection and other sexually transmitted diseases. The rhythm method or other methods that depend on hormonal changes are not reliable methods of birth control for women. Hormonal contraceptives are preparations that contain at least one natural or synthetic steroid hormone. A wide range of hormonal methods of contraception are available (Table 1). There are four categories of hormonal contraceptive agents available in the United States and in many countries (Table 1). They include oral contraceptives pills (combined and mini-pills), contraceptive patches, hormonal implants, intrauterine devices and hormone injection agents. They provide a convenient, affordable and consistent means of contraception in women. The efficacy of hormonal contraceptives is highly dependent on correct use and individual lifestyles.