



Mifepristone (RU-486): A Drug that Destroys Life

by Joseph B. Stanford, M.D.

“THIS CHURCH OF JESUS CHRIST OPPOSES ABORTION
AND COUNSELS ALL MEMBERS NOT TO SUBMIT TO
NOR PARTICIPATE IN ANY ABORTION, IN ANY WAY,
FOR CONVENIENCE OR TO HIDE SINS. ABORTION MUST BE CONSIDERED
ONE OF THE MOST REVOLTING AND SINFUL PRACTICES IN THIS DAY, WHEN
WE ARE WITNESSING A FRIGHTENING EVIDENCE OF PERMISSIVENESS
LEADING TO SEXUAL IMMORALITY. WE TAKE THE SOLEMN VIEW THAT ANY
TAMPERING WITH THE FOUNTAINS OF LIFE IS SERIOUS MORALLY, MENTALLY,
PSYCHOLOGICALLY, PHYSICALLY. TO INTERFERE WITH ANY OF THE
PROCESSES IN THE PROCREATION OF OFFSPRING IS TO VIOLATE ONE OF THE
MOST SACRED OF GOD’S COMMANDMENTS — TO ‘MULTIPLY, AND
REPLENISH THE EARTH’ (GEN. 1:28).”

— *President Spencer W. Kimball*
April 1975 General Conference

Mifepristone is a drug that was developed for the purpose of terminating pregnancy; hence it has received considerable press attention as the French “abortion pill” (RU-486). It is a progesterone antagonist with multiple effects on the body. Mifepristone has been conditionally approved by the FDA for use in the United States and will probably be marketed this year.¹ Because of widespread interest in this new drug and especially because there are profound ethical issues associated with its use, it seems important for physicians in the Church to be knowledgeable about this medication.

The purpose of this review is to give a succinct summary of the properties of this agent and the spectrum of its possible uses, especially those related to pregnancy, and then to explore the moral issues which are raised by its use — and which ultimately may apply to similar applications of other drugs. In so doing, I will state why I feel it is inappropriate for a faithful LDS physician to prescribe this drug for the purpose of interrupting the development of human life. I hope that my perspectives help stimulate others to develop their consciences regarding medications and procedures that intimately affect the processes which God has established for the creation of mortal human life.

MIFEPRISTONE: A BRIEF MEDICAL OVERVIEW

Mifepristone is a steroid derived from the progestin norethindrone, but, unlike norethindrone, it has no progesterone agonist effects.² The drug competitively binds to progesterone receptors, which are present predominantly in the reproductive tract. Its affinity for these receptors is five times that of progesterone. Mifepristone also affects the pituitary feedback mechanism, so that when it is administered in the follicular phase of the menstrual cycle, ovulation and endometrial development are delayed.^{3, 4} When mifepristone is given in the luteal phase of the menstrual cycle, the major effect is degeneration and shedding of the endometrium, which will either prevent implantation of a conceptus or will prevent further development of an embryo that has already implanted. Mifepristone increases the levels of prostaglandins F₂alpha and E₂ in uterine tissue and thus increases uterine contractions.⁵ Mifepristone also binds to glucocorticoid receptors with three times the affinity of dexamethasone; however, clinically significant hypocortisolism only occurs with high doses over several weeks.

Orally administered mifepristone absorbs easily from the gastrointestinal tract, and the serum half-life of the drug is about 20 hours. Because of saturation characteristics of the carrier protein, similar serum levels of mifepristone occur following ingestion of doses varying from 100-800 mg.⁵

Mifepristone has been applied medically in a variety of ways:

- as an adjunctive agent for cervical ripening for second-trimester abortions;
- as a means to induce abortions early in gestation (in combination with various prostaglandins);
- as an agent for post-coital (“morning after”) contraception;
- as a monthly contraceptive medication;
- as a daily contraceptive medication;
- as an agent to induce labor at term.

Mifepristone also has potential uses unrelated to pregnancy, including its possible use in malignancies like breast cancer, prostate cancer, Cushing’s syndrome, and possibly endometriosis. For the purposes of this article, I will review only those uses related to interruption or avoidance of pregnancy.

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WHAT MIFEPRISTONE DOES

Mifepristone has been used to “ripen” and dilate the cervix before termination of a second-trimester pregnancy by administration of prostaglandin.⁶ It reduces the time interval from prostaglandin administration and expulsion and allows lower doses of prostaglandin to be used. The exact mechanism for this effect is unclear.

The most publicized use for mifepristone is as an “early abortion pill.” Actually, mifepristone is relatively ineffective when used alone for this purpose (only 50% to 85% complete abortions when administered in the first 49 days of amenorrhea).⁵ Used in conjunction with a prostaglandin agent, however, mifepristone is an effective abortifacient when administered early in pregnancy (within the first 49-50 days of amenorrhea).

The most common regimen is to give a single oral dose of mifepristone, followed by a prostaglandin administered 48 hours later. Prostaglandins that have been used for this purpose include sulprostone (administered IM; use now abandoned because of rare association with myocardial infarction); gemeprost (administered intravaginally); and misoprostol (administered orally or vaginally; available in the U.S. under the trade name Cytotec for the FDA-

approved indication of prevention of NSAID-induced gastric ulcers). The rate of complete abortion with 1 dose of mifepristone and 1-2 doses of misoprostol is generally 95% or more and has been reported in one study to be as high as 98.7%.⁷ “Failures” include ongoing pregnancies (0.5%), incomplete abortions (0.5%), and ectopic pregnancy (0.3%).⁷ Common side effects of the combination of mifepristone and a prostaglandin include nausea, vomiting, diarrhea, fatigue, dizziness, lower abdominal pain, and uterine cramps. Prolonged uterine bleeding can occur, and around 1% of women have excessive bleeding, requiring vacuum aspiration.

Similar results have been reported for the use of methotrexate with misoprostol, suggesting that regimens for “medical abortion” may be developed with other medications that are currently available in the United States.⁸

USE FOR POST-COITAL CONTRACEPTION

A single oral dose of mifepristone used within the first 72 hours after intercourse prevents pregnancy. The major mechanisms appear to be the delay of ovulation if the drug is given before ovulation or the prevention of implantation if given after ovulation. Mifepristone is at least as effective as an established regimen for the same purpose: two estrogen-progestin oral contraceptive tablets (of a specific dose level) followed by two more tablets 12 hours later.⁹ Somewhat fewer women experienced side effects (predominantly nausea and vomiting) with mifepristone than they did with the hormonal regimen. In addition, mifepristone has been used as post-coital contraceptive agent for up to 17 days after intercourse, although the longer the interval, the more likely it is that some “failures” (pregnancies) will occur.

INVESTIGATIONAL USE FOR MONTHLY CONTRACEPTION

Theoretically, mifepristone could be used on a monthly basis to prevent implantation (or continuation of an implanted embryo), to prevent follicular development or both. This application remains investigational, however.⁵

INVESTIGATIONAL USE FOR DAILY CONTRACEPTION

Daily administration of mifepristone has been shown, in low doses, to alter the endometrium in a way likely to prevent implantation and, at higher doses, also to stop follicular maturation and to delay ovulation (until several days after discontinuation of treatment).¹⁰ This application also remains investigational. It is interesting to note that an analogous spectrum of effect has been observed for synthetic progestin-only birth control pills and low-dose combined estrogen-progestin birth control pills: while they usually suppress ovulation at lower doses, “breakthrough” ovulation sometimes does occur¹¹ while



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the endometrium remains altered in a way that is likely to prevent implantation.¹² Similar observations have been made for the long-acting progestin contraceptives Norplant^{13, 14} and Depo-Provera.¹⁵

Besides their effects on the endometrium, synthetic progestins alter the cervical mucus, likely preventing sperm transport.^{4, 12} I have been unable to find any reports of the effect of mifepristone on cervical mucus; theoretically it might enhance the production of the type of mucus which is favorable for sperm transport since progesterone is responsible for the production of the type of cervical mucus which is hostile to sperm.

ETHICAL AND MORAL QUESTIONS RAISED BY MIFEPRISTONE

The potential availability of mifepristone for the pregnancy-related applications I have briefly reviewed raises some important questions for physicians. These questions are not unique to this single medication; as noted earlier, other medications can be used in similar ways, and it is likely there will be new drugs (and new applications developed for old drugs) which raise the same issues. Nevertheless, I believe that consideration of the spectrum of potential uses for mifepristone brings two questions sharply into focus:

1. What is induced abortion?
2. When does life begin, and at what point in the reproductive process should a life or potential life be respected as sacred?

It is clear that the answers to these questions are intimately interrelated. Our knowledge of the processes of human reproduction and our capability to medically intervene in these processes require each of us to personally consider these questions and their moral implications.

Induced abortion can no longer be defined as solely a surgical procedure. In addition to surgically induced abortions, now there are medically induced abortions (The attempt to terminate pregnancy with medication is not new, but the reality of a highly effective medical regimen to do so in the first trimester is relatively new). The Lord states, "Thou shalt not...kill, nor do anything like unto it" (D&C 59:6). In accordance with this commandment, modern day prophets have constantly warned against the sin of abortion.

Because abortion can be induced by medical means, a crucial issue is the question of when human life begins. In obstetrics and gynecology, pregnancy has been medically defined as an event that begins at implantation.¹⁶ By this definition, some have rationalized that "abortion," or

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"abortifacient effects" cannot take place before implantation. Under this view, if mifepristone (or any other agent) is used in a way that prevents implantation, but does not prevent conception, "abortion" does not occur. The fact that some conceptuses spontaneously fail to implant is often cited in support of this point of view.

Is this medical definition a valid basis for a moral decision? I do not think so. Elder Russell M. Nelson, in the April 1985 General Conference, addressed this issue:

It is not a question of when "meaningful life" begins or when the spirit "quicken" the body. In the biological sciences, it is known that life begins when two germ cells unite to become one cell, bringing together twenty-three chromosomes from both the father and the mother. These chromosomes contain thousands of genes. In a marvelous process involving a combination of genetic coding by which all of the basic human characteristics of the unborn person are established, a new DNA complex is formed. A continuum of growth results in a new human being. The onset of life is not a debatable issue, but a fact of science.

I realize that at various times in the past, differing opinions have been expressed as to when the spirit enters the body.

Recently, Elder Dallin H. Oaks addressed this issue in the October 1993 General Conference:

Our attitude toward abortion is not based on revealed knowledge of when mortal life begins for legal purposes. It is fixed by our eternal knowledge that according to an eternal plan all of the spirit children of God must come to this earth for a glorious purpose, and that individual identity began long before conception and will continue for all the eternities to come. We rely on the prophets of God, who have told us that while there may be "rare" exceptions, "the practice of abortion is fundamentally contrary to the Lord's injunction, "Thou shalt not... kill, nor do anything like unto it."

Finally, Elder Lynn A. Mickelsen of the Seventy stated in the October 1995 General Conference that "human life is the precious stepping stone to eternal life, and we must jealously guard it from the moment of conception."

I believe that when mifepristone (or any other medication) is used for the purpose of interrupting a developing human life, it is morally equivalent to surgically induced abortion, regardless of how early in the process it is applied. I see no moral basis for any distinction between the use of an abortifacient drug before implantation (but after fertilization) or following implantation. In practical

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terms, I see very little moral difference between using mifepristone as a post-coital contraceptive, where there is a significant probability that it will prevent the implantation of a conceptus, than using it a week or more later to destroy an embryo that has already implanted.

MY PERSONAL JOURNEY

I sought my own personal answers to these issues during medical school at the University of Minnesota. I learned of the potential post-conceptual mechanism of action of hormonal contraceptives (as well as of intrauterine devices) during a pharmacology class and discussed this with some of my classmates who were good friends and who, incidentally, were of the Baptist, Lutheran, and Catholic faiths. I was the only LDS student in my class. Several of us decided that we did not want to prescribe any agent that might have an abortifacient mechanism. Following that decision has led me to many other personal discoveries that go beyond the scope of this article. I have found that as I approach patients in a way that respects their own moral agency and explain that there are certain things that I cannot prescribe because of my own personal beliefs, they are almost universally understanding. I have had similar reactions from most of my medical colleagues. I respect their moral choices and find that most of them are willing to respect mine.

In the process, I have learned that the standards of the medical community cannot, of themselves, be a sufficient basis for our own moral standards. Each of us has a personal responsibility to the Lord for our choices in the practice of medicine. As faithful Latter-day Saints, our safety and security lie in following the revealed word of the Lord and the counsel of His prophets and in seeking the guidance of the Holy Ghost to carefully apply this counsel to our own medical practices. We should never allow patients' requests, medical practice guidelines, or prevailing medical opinion to induce us to violate our own moral standards.

In conclusion, I wish to acknowledge that many of the situations and issues that arise in medical practice are not easy. With regard to issues that deal with the sacred powers of procreation and the beginning of mortal life, I have found that some of the most heart-rending dilemmas can occur, matched perhaps only by some situations that arise at the end of mortal life. I believe that each of us has the need — and the privilege — to thoughtfully and prayerfully consider our choices in these matters and to receive inspiration from God in making our choices. I pray that each of us may seek and receive that inspiration.

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Editor's Note: Views expressed in this manuscript are those of the author and do not necessarily represent the views of the University of Utah.

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