The Linacre Quarterly

Volume 62 | Number 3 Article 10

August 1995

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by

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Recent developments in vaccine technology and biotechnology in general have advanced a new version of abortion under the semblance of birth control. Funded by various international agencies (particularly the World Health Organization), research over the past 20 years is coming close to the development and marketing of several types of vaccine technology whose sole purpose is to terminate a pregnancy (i.e. induce an abortion). Abortifacient vaccines (also termed antifertility vaccines, or contragestational vaccine) are defined as vaccines that act to sensitize the maternal immune system to terminate a pregnancy either by blocking a mechanism of pregnancy (i.e. human chorionic gonadotropin) or by the immune system attacking and killing the embryo (usually prior to nidation). The end result is a very early stage first trimester abortion.

This paper explores abortifacient vaccine technology and the repercussions on abortion, the vaccine recipient, and the pro-life movement. This paper strongly urges that the pro-life movement prepare clear teachings on the evils of this technology, the resultant abortion effects, and the health hazards involved with this technology.

Types of Abortifacient Vaccine

A. Human Chorionic Gonadotropin (hCG) Vaccine

Several variations of the abortifacient vaccine are under development: the hCG vaccine and the TBA vaccine.

The first generation vaccine research led by Dr. Vernon C. Stevens[1] at Ohio State University and by Dr. G.P. Talwar[2] at the National Institute of

Immunology, New Delhi, India, have brought closer the dawn of a new form of abortion.

Since the 1970's, under support from the World Health Organization (WHO), research has been directed at immunologically blocking conception or the immunological termination of a pregnancy. One key target has been the hormone, human Chorionic Gonadotropin (hCG). This hormone created by the developing embryo signals the maintenance of the corpus lutem which provides progesterone and estrogen to maintain the vascularization of the uterine endometrium during the first few months of pregnancy. Should hCG levels drop in the first critical 6 to 10 weeks, the uterine vascularization would break down, resulting in the death of the developing embryo while the uterine endometrium sloughs off the uterine wall. HCG is similar in structure and chemistry to other glycosylated peptide hormones (e.g. Thyroid Stimulating Hormone (TSH), Luteinizing Hormone (LH), and Follicle Stimulating Hormone (FSH); being composed of two glycosylated peptide chains (alpha and beta). While the hCG alpha chain is nearly identical to other glycosylated peptide hormones, the hCG beta chain is more distinct biochemically.

Early studies to develop a vaccine against hCG were hampered by immunogenic cross reactivity with FSH, TSH, or LH, due to nearly identical alpha peptide chain sequences. Research focused on the hCG beta chain, but it shares 85 per cent sequence commonality for the first 110 amino acids with LH. Therefore, the focus shifted to the last 35 amino acid sequence of hCG which is sufficiently different from LH. This subunit of the hCG beta chain, now referred to as the hCG beta peptide fragment, has served as the focal immunogen in the development of a hCG vaccine. Further versions have inculded linking the hCG beta peptide fragment to various carrier molecules (e.g. tetanus or diphtheria toxoids) to enhance immune responses to the hCG peptide.

Recent research has begun to bear fruit at various facilities across the globe. Phase II studies for the Stevens vaccine are still in progress[5], but Talwar's group reports[2] that early Phase II studies indicate that sexually active women sustained high antibody titers to hCG and were prevented from getting pregnant. No major side effects were reported in either the Phase I[3] or early Phase II trials[2]. Furthermore, Phase I trials detected no significant changes in the peptide or steroid endocrine parameters.[14] Presumably, the high levels of antibodies acted to remove hCG molecules from the blood. This would cause any developing embryo to fail uterine implantation (AKA nidation) and pass out during menstruation.

As no disruption of the ovulatory cycle or menstrual cycle was reported, it could be presumed that the embryo passed from the Fallopian tube into the uterus and never achieved complete endometrial implantation. Stevens reports that it is possible that the vaccine might not merely encourage humoral (antibody-based) immuity, but may cause cellular (lymphocyte-based) immunity. Since the trophoblast layer of the embryo produces and secretes hCG. Stevens states that it is possible that sensitized lymphocytes may attack and destroy the trophoblastic cells of the peri-implantation blastocyst (embryo).

Talwar and Stevens' work suggests that this vaccine could last beyond the

initial six months that Phase I studies describe. Further improvements in the vaccine, including those based on monkey trials which used delayed release biodegradable microspheres to achieve active immunization lasting 2 years[2], indicated that a long lasting hCG vaccine is now within reach for human use. Talwar[4] has stated that he has been contacted by pharmaceutical firms from Korea, Indonesia, France, and Holland, but not yet from the United States.

As recent events have demonstrated, the marketing and distribution of an abortifacient medical product (e.g. RU-486) outside of the United States can still eventually be brought into the United States under the miasma of political rhetoric, and with the assistance of non-profit groups like The Population Council. With social and political organizations promoting a pro-choice/pro-abortion agenda, any device that offers simplicity of use, longevity of effect, and little evidence of side effects becomes an attractive product to promote in the United States. The hCG vaccine is such a device. With rapidly advancing vaccine technology, the hCG vaccine could become easily accessible in the next few years; and with improvements, could attain a 5 year efficacy life-span between booster vaccinations.

Furthermore, ready acceptance in developing countries, Europe, Japan, and the Pacific rim nations, would add further political/social pressure to allow acceptance within the United States under the guise of contraceptive choice and population control.

Clearly the hCG vaccine is nearing complete development. With its absence of major side effects, convenience of use, and guarantee of zero pregnancies, the hCG vaccine appears attractive to a world market desperately searching for more effective methods of birth control. Yet the hCG vaccine's method of action is clearly abortifacient. As the hCG vaccine enters into the final vaccine testing phases and eventual marketing, it must be up to the Church as a whole not be lulled into complacency by world market acceptance, but rather to develop an appropriate response to this "abortion vaccine".

B. Trophoblastic Antigen (TBA) Vaccine

The second generation abortifacient vaccine is called the Trophoblastic Antigen (TBA) vaccine. Early research funded by the World Health Organization (WHO) special program of research in human reproduction continues to develop another type of birth control vaccine which will abort an early stage embryo.[6,7]

Touted as contragestational vaccines (i.e. vaccines that block the development and growth of life during the gestation period which lasts from fertilization of the human egg to the delivery of the baby), work has focused on the isolation of a select antigen on the trophoblastic layer of the human embryo. The outer layer of the trophoblast (the layer of cells which helps the embryo implant into the mother's uterine lining and later forms the placenta), called the trophoectoderm, is the target from which a vaccine would be devised. Antibodies will select a unique protein on the surface of the trophoectoderm. This protein will be the antigen from which a vaccine will be developed. The vaccine will in turn "teach" the woman's immune system that the early embryo is foreign and must be destroyed.

The eventual protocol for the TBA vaccine is similar to the hCG vaccine.[9] The woman's immune system is trained to consider the antigen (i.e. the trophoectoderm surface protein) foreign and will then mount an immune response (cellular or antibody-based or both) against the trophoblastic layer of the embryo. This will destroy the early embryo prior to implantation within the uterine endometrium. The woman has no disruption of her menstrual cycle or menses. It is thought that the woman would never know that she was pregnant. It is hoped that this vaccine, touted as a form of birth control, will last one or more years in efficacy.

Although recent research has been focused on tissue culture and animal studies[6,7], the research will eventually require human studies. These human studies will include dissection of early human embryos (referred to as pre-embryos, if they are less than 14 days post-fertilization). This research on pre-embryos is deemed acceptable under guidelines developed by the Ethics Committee of the American Fertility Society. IF such research would provide new information not otherwise obtainable.[8] In the pursuit of trophoectoderm antigen vaccines, such research might be deemed acceptable.

It must be noted that the committee states that the pre-embryo (because of their early developmental state and that they have not yet achieved uterine implantation) deserves respect beyond human tissue, but *NOT* the respect of an individual person (emphasis this author). Basically, if the pre-embryo is not going to be implanted into a uterus (to grow into a human infant) and if basic research would gain valuable information, then dissection of human pre-embryos, especially to verify early presence of antigens to be used in "birth control" vaccines would be permitted. The dissection studies would be used to determine the early presence of antigens that the abortifacient vaccine would be targeting. The premise is that the earlier the presence of the antigen, the earlier the vaccine primed immune system can detect and then destroy the embryo. Finally, human vaccine trials (similar to the hCG vaccine trials presently underway [9,10]) would then commence.

This research may now be accelerated due to the recent National Institute of Health's (NIH) ad hoc committee report on Human Embryo Research.[15] This report's conclusions clearly support human embryo research for the development of "birth control" vaccines.

This potential vaccine offers similar promises and hazards (to be discussed later in this text) to the hCG vaccine.[11] Both would induce an abortion of an early embryonic life. Both would be touted as "birth control" that is long lasting, low maintenance, and easily available.

Unfortunately, the WHO continues to fund this research. Dr. C.S. Bambra[6] at the Institute of Primate Research in Nairobi, Kenya,indicates that animal model studies on baboons are the next step in the development of this vaccine. Although these studies are less developed than the hCG vaccine [9,10,11], the TBA vaccine must be viewed by society and the prolife movement for what they really are - an abortifacient vaccine.

Problems and Hazards

NOTE: that although of much the comments below focus on the hCG vaccine,

(due to its more developed status) the problems and hazards could apply equally to the TBA vaccine.

A. Abortion

Several points must be addressed with regards to abortifacient vaccine use. First, clearly this vaccine induces an abortion of a developing embryo each month (when such embryo is conceived). Whereas Talwar's studies demonstrate that menstrual and ovulatory cycles were maintained and regular[2,3], it then becomes easy to understand that hCG vaccines cause one abortion per ovulatory cycle (if the woman is sexually active); ergo, 12 ovulation cycles per year, 12 abortions per year. This clearly conflicts with Biblical and Church teaching on the sanctity of life and God's abomination towards abortion.

Furthermore, as mentioned earlier, research leading to the development of the TBA vaccine will require the dissection of human embryos to determine the appropriate tropohoblastic surface antigen to focus the immune response against. This would further degrade human life and if sanctioned, would further degrade Christian teaching on the sanctity of life.

B. Health Hazards to Mother (Vaccine Recipient)

Secondly, although hCG titer studies have lasted less than one year, no large scale and long term (5 or more years) studies have been conducted. No studies have addressed the possibility that if the immune system is repeatedly exposed to the immunogen (hCG), then could the subject eventually become "immunologically sterile". That is, a subject would be fertile for having and regularly producing healthy oocytes, capable of having the oocyte fertilized and travel through the Fallopian tubes, but because the immune system attacks the hCG blood levels (and perhaps the hCG producing trophoblast cells of the embryo), the developing embryo/life will never come to term/birth.

Also, a recent study by Dirnhofer, *et al*[12], suggests that the vaccine may induce an autoimmune reaction to the ovaries. If this occurs, premature menopause could occur, followed by the risk of osteoporosis and the increased risk of cardiovascular disease.

Should later hCG vaccine recipients develop this situation, this author wonders if WHO funding would be directed to address it (Perhaps by development of an anti-idiotype vaccine.).

In a similar fashion, it is conceivable that TBA vaccines could also render women "immunologically sterile". It must be stressed that this vaccine will focus its action solely on the developing embryo.

C. Tool of "Forced" Birth Control

Thirdly, this vaccine could become an abused tool to "control conception". In developing countries, forced sterilization and abortion have been considered or actively used as policies to achieve reductions in population growth. Applications of hCG vaccines could be applied either by force or coercion (e.g. withholding employment, voting rights, or health care, to women that refuses hCG booster vaccinations).

Even within the United States, this vaccine could become abused. Instead of

handing sexually active adolescents condoms and other contraceptives, hCG vaccines could be a parental/societal response to adolescents who refuse sexual abstinence. Furthermore, the application of the hCG vaccine could become the answer to deal with other reproductively related societal problems. An hCG vaccine could be court-mandated to prevent child abusing women from having any more children which they might later abuse. As some individuals, like Dr. Joycelyn Elders have suggested, birth control could be the answer to poverty, crime, and other social problems; it could be suggested that further welfare support would become dependent on young mothers suppressing further births by using the hCG vaccine.

D. Effects on Pro-Life Movement and the Church

Will abortifacient vaccines affect the man-in-the-street or church pro-life teaching at large? Perhaps. Will pro-life and lobbying lose some of their influence and political might? Maybe. Will the abortion debate be rendered to an issue (which as Supreme Court Judge Ruth Bader Ginsburg has stated) of a private decision within a doctor's office? Yes, it could.

How?

Consider the following points. One main arena in the marketplace of ideas where pro-life protests, sidewalk counselors, and public notice of the pro-life message occurs is in front of an abortion clinic or hospital. It is important to note that RU-486 market studies predict that the drug will replace 30-60% of clinical legal abortions.[13] Abortion vaccines could replace 90% (or more) of the clinical legal abortions, while at the same time being touted as a safe, effective, long term form of birth control. While such health data sources such as the Centers for Disease Control (CDC) and the Alan Guttmacher Institue (AGI) will record a drop in legal induced abortions (due to abortifacient vaccine use), the true number of abortions will rise exponentially!

Furthermore, one method that pro-life uses to convey the "humanness" of the fetus is to display graphic photos of fetuses with well formed fingers, eyes, hands, toes, a heart beating, etc. Abortifacient vaccines act to destroy the life in the embryonic (i.e. trophoblastic stage) stage, well BEFORE toes, eyes, hands, etc. are formed. Also, it will be harder to "emotionally associate" with a hollow ball of cells (the trophoblastic embryo) than with a human-shaped fetus.In essence, the myth that abortion removes just a "blob of cells or tissue" will be reinforced.

Beyond the reduction in clinical abortions (and perhaps abortion clinics) and the problems of defining and developing emotional compassion unto the embryo, pro-life forces must deal with vaccine distribution. Whereas pro-life forces have had to deal with hundreds of abortion clinics and hospitals across the United States, abortion vaccine will be distributed in the offices of **tens of thousands** of OB/GYN doctors. While some pro-life leaders have admitted that getting sufficient numbers of protestors, sidewalk counselors, and other supporters at all the local clinics has been hard; demands to produce protestors for ALL the doctors distributing abortifacient vaccines would be next to impossible. Furthermore, the decision to obtain the vaccine would be protected by doctor-patient confidentiality and concealed in the privacy of a doctor's examining room.

With the destruction of life occurring so early after conception, the sense of personal responsibility for the destruction of unborn life is further diminished. In a sense, if there is no body, then there exists no crime. Since the vaccine destroys life at the early embryonic stage (the embryo is smaller than the dot on an "i"), a mother will never know that she was pregnant nor realize that her "birth control" killed her child. Society or the Church would have a difficult time speaking out against this technology if no visible corpse exists. Personal and public accountability will be greatly reduced as the life is destroyed so early in development.

Self deception will strengthen as this technology proliferates. A birth control technology that removes the consequences of sexual intercourse may encourage further sexual immortality while at the same time ignore the monthly cost of an abortion within the womb. If the Church does not speak out against this technology before it arises commercially, it may have less influence as a moral guide afterwards.

Furthermore, the Church may be faced with a future challenge to clearly confirm the sanctity of life even at the embryonic stage. There will arsie "pro-vaccine advocates", who will justify the vaccine by declaring that the embryo is "not quite human" and therefore expendable. This mentality already exists as demonstrated by both the American Fertility Society and the NIH ad hoc committee endorsing human embryo research.[8,15] The Church must then proceed with clear teachings on the sanctity of life at all stages of development. To do less, will condemn many unborn lives to a quiet death.

E. Counterstrategies

Perhaps one counterstrategy would combine public education in pro-life issues coupled with enhanced cooperation amongst pro-life forces and Christian churches. The first part will require advanced education on the possible side effects of vaccine technology as well as clearly stating the consequence of this technology; that is, it induces an abortion after each conception. Furthermore, pro-life forees and the Christian Church must continue to educate on issues such as reproduction and responsibility, the psychology of love and sex, declaration of "life" at conception, adoption versus abortion, "safe sex", bioethics, abstinence, the value of life, etc.

Beyond this, pro-life forces must increase their cooperation amongst the various pro-life organizations — religious or otherwise. This may require expanding communication and information exchange. One pro-life organizer told me some groups are fiercely competitive over information and on securing credit for information and events. In essence, they guard their work in a manner not unlike some secular corporations. Granted, fund raising for survival is necessary, but cooperation amongst pro-life forces will inevitably strengthen pro-life forces individually and corporately.

This cooperation may require expanded communication on current issues, Biblical analysis, pro-life meetings and political events, protests, etc. via fax broadcasting technology, computer networks, and periodic teleconferencing.

Finally, one argument against pro-life forces and the Church has been that they

do not care about the number of children a woman is FORCED to bear. Pro-life counterpoints have focused of God's timing of when and how many children to bear and natural family planning techniques.

If pro-life really wants to regain the high ground in reproduction issues, it must examine technology as part of the answer. With the explosion of biotechnology, biosensors, microelectronics, medical diagnostics, etc., technology now exists (or may require some development) that would not induce an abortion and yet allow a safe, effective method of family planning. Several companies and many patents exist that would allow a rapid and accurate monitoring of a woman's fertility cycle; some even giving a day or two notice prior to ovulation. Yet how to get this technology into the hands of John Q. Public . . Jane Q.Public?

Amidst the sea of pro-life members exist patent attorneys, entrepreneurs, investors, marketing specialists, doctors,scientists, engineers, manufacturing specialists, business administrators, etc. Put this mixture together and companies can be formed to develop, produce, and market this technology. Thus, from pro-life forces springs forth the pro-life technology which would easily surpass RU-486, Norplant, and abortifacient vaccines (as well as many other types of contraceptives!).

Finally, the circle will be complete. From pro-life philosophy and theology, to education and communication, to finally the technology which achieves a respect for life (including the unborn) and a respect for reproductive responsibility.

Conclusion

In conclusion, abortifacient vaccine technology will present a new series of challenges to the Church, bioethicists, and pro-life organizations. The health hazards to the vacinne, and the possibility of using this technology for social engineering, will require effective education to the Church as a whole for many years to come. Quiet acceptance of this technology will only insure an increase in abortions, enhanced social apathy towards abortion, a continued cheapening of life, and the possibility of "immunologically sterile" vaccine recipients in the future. As the future of medicine progresses, the Church must clarify the repudiation of abortifacient vaccines as part its pro-life agenda.

Furthermore, abortifacient vaccines present pro-life forces with a threat that goes beyond the clinic. It will present pro-life forces with a challenge to seek new strategies of education, communication, intergroup cooperation, and technological innovation. If they refuse this challenge, then pro-life forces must prepare to face atrophy of political, social, and counseling influence in American society. Sadly, if pro-life forces choose not to accept the challenge, they could wind up in the same historical wastebasket as the Women's Christian Temperance Union. The Whig Party, or the International Workers of the World (AKA Wobblies) Union.

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