

# PREMATURITY PREVENTION PROGRAM

NATIONAL CENTER  
FOR THE TREATMENT OF  
REPRODUCTIVE DISORDERS

POPE PAUL VI INSTITUTE

Prematurity is one of the major complications of pregnancy. It currently affects approximately 10 percent of all pregnancies. When the baby is born prematurely, there is significant risk of complications as the result of being born prior to reaching its full mature development.

*In most circumstance*, the best incubator for the baby is the mother's womb. That is to say, modern medicine has not yet been able to duplicate the ability of the womb to take good care of the baby's growth and development needs. Thus, it should be a goal to maintain the pregnancy as long as possible.

In addition, when the baby is born prematurely, it is often necessary for the baby to stay in the hospital for prolonged periods of time. While our neonatal intensive care units are extremely capable in this day and age and while the baby's survival is usually good (especially after the 28th week), having the baby in intensive care definitely decreases the ability to bond with the parents and provide it the type of love and affection all newborns need. Thus, another major reason for preventing premature birth is to provide your baby with the best early infancy environment possible.

In order to prevent the complications of prematurity for your baby and to encourage the type of early infancy environment necessary for good nurturing, the Pope Paul VI Institute for the Study of Human Reproduction has introduced the Prematurity Prevention Program.

This program has been based on 12 years of research into the causes and treatment of prematurity. An extensive effort has been placed into trying to identify those women who are at high risk for prematurity and ways in which their risks can be significantly lowered.

While the national standard for premature birth at the present time is approximately 10 percent, the prematurity rate at the Pope Paul VI Institute is about 3 percent. This is the result of an aggressive and pro-active management program which involves all pregnant patients in the Premature Prevention Program.

## IDENTIFYING THE RISK FACTORS

The most important initiating factor in treating prematurity is identifying those conditions which place someone at increased risk for premature birth. The following would be a list of those conditions which put a pregnant woman at increased risk for premature labor and subsequent birth:

1. *Previous prematurity*
2. *Exposure to Diethylstilbesterol (DES)*
3. *Cervical incompetence (congenital, acquired or relative)*
4. *Previous repetitive miscarriages*
5. *Placenta previa*
6. *Malformations of the uterus or large uterine fibroids*
7. *Cervical cone biopsy*
8. *Multiple pregnancy (twins, triplets, etc.)*
9. *Persistent uterine irritability*
10. *Excessive amniotic fluid (polyhydramnios)*
11. *Severe kidney or urinary tract infections*
12. *Age less than 18 years or greater than 35 years*
13. *Smoker*
14. *Infertility or other reproductive disorders*

Each of these conditions place a pregnant woman at increased risk for preterm birth. What this means is that her risk for going into preterm labor and subsequently delivering prematurely is over and above someone who does not have these risk factors. The object of a preterm prevention program is to lower the risk of these high risk patients. In other words, it is impossible to completely eliminate the risk, but it is definitely possible to lower the risk. Thus, by seeing whether or not you are on this list of risk factors, will help considerably in understanding whether or not you fall at increased risk for preterm birth.

## SELF-MONITORING FOR UTERINE CONTRACTIONS

The next step in monitoring prematurity is teaching patients how to do self-monitoring for uterine contractions. While it is true that some contractions during the course of pregnancy are quite normal, it is not true that these contractions should become more and more prevalent as the pregnancy advances.

One used to talk about Braxton-Hicks contractions but it is not a good idea to think in those terms today. Braxton-Hicks contractions, in the past, were thought of as contractions that were related to "false labor". However, it is now known that *true pre-term labor* begins with increased uterine contractions several weeks prior to the actual onset of labor. In other words, in a woman who goes into pre-term labor at 28 to 30 weeks, that same woman will have symptoms of that pre-term labor beginning 6, 8, 10 even 14 or 18 weeks earlier than this. Thus, teaching pregnant women how to be very self-aware of those symptoms can tell the physician about these events and set in motion the protocols for the prevention of pre-term birth. These protocols, in effect, are implemented to take these high risk patients and lower their risk.

The Pope Paul VI Institute has developed a uterine contractions self-monitoring form which allows the patient the opportunity to monitor their entire pregnancy on a day by day basis. This type of monitoring is critical to *pregnancy health maintenance*.

In order for the patient to properly complete this form, it is critical that they understand the symptoms that are associated with these early signs of pre-term labor (which begin many weeks prior to the actual onset of labor and which are treatable and preventable if properly identified).

These symptoms include the following:

1. **CONTRACTIONS:** The uterus is a muscle and when it contracts there may or may not be a feeling that the woman will perceive of that contraction. When the woman is in labor, the contractions are easily identified. However, in the earlier stages of pregnancy, they may easily go unnoticed unless she develops an awareness of these contractions and a realization of their importance.

Uterine contractions cause the uterus to tighten and release in a rhythmic kind of way. Uterine contractions are not constant (generally speaking) and only occasional or irregular contractions are of less significance.

The woman can appreciate the presence of uterine contractions by simply realizing the importance of this kind of tightening that occurs in her abdomen which comes and goes over a period of time. This can also be identified by laying on one's left side with finger tips pressing against the uterus. If the uterus indents soft and easily then there are no contractions. Once the uterus tightens it will feel more firm and that firmness is a contraction whether or not the woman perceives it as a contraction or not. One can time these contractions with this type of monitoring.

2. **CRAMPS:** Some women experience uterine contractions as a menstrual-like cramping that comes and goes. The key to this is the rhythmic nature of them. These cramps tend to come and go and they should not be ignored when they happen.
3. **BACKACHE:** Low backache which also is rhythmic is another sign of uterine contractions. Sometimes uterine contractions are best felt in the back and are not felt in the front at all. Again, one's awareness that this may occur can be very helpful.
4. **PELVIC PRESSURE:** Sometimes uterine contractions are felt simply as a significant pressure in the pelvis which also tends to come and go. Sometimes women will describe this feeling as something "falling out". Again, the main key to this symptom is the rhythmic nature of the pressure. They don't have to be occurring every three to five minutes in order for them to be important, incidentally. Sometimes they are rhythmic only two or three times an hour or two or three times a day. It is important for the patient to keep track of that type of rhythmicity so that one has a good idea of what the frequency of these contractions are.

5. **ABDOMEN KNOTS UP LIKE A BALL:** Sometimes the only symptom of contractions is this tightening of the uterus in which the uterus seems to "knot up like a ball". In a situation like that it's easy to touch the uterus through the abdominal wall and to determine its firmness. Again, if these are rhythmic, they are of significant importance.
6. **INTESTINAL CRAMPS:** Sometimes the symptoms are only felt as sort of "gas pains" or intestinal cramps. However, if these come and go in a rhythmic fashion they are really uterine contractions.
7. There are a number of other symptoms that can also be observed in the early stages of pre-term labor and they should be noted as well. If there was an increase in *vaginal discharge* or *any vaginal bleeding*, then they should be properly noted. Also, in some patients, it is difficult for them to describe their symptoms and sometimes they will just simply communicate that they are "generally not feeling right" and this needs to be taken seriously and investigated or evaluated further.

Now in self-monitoring, it is recognized that contractions of the uterus do occur throughout the course of pregnancy and these are generally normal. However what is of significance is when there is *a change from the day to day baseline* of the general contraction pattern. Thus, it is of importance to answer, on a daily basis the question "Is today the same as yesterday?" So long as the baseline pattern is the same from one day to the next then it is not so critical to have anything done about these contractions. However, once there is a change from that baseline, it does mean an increased level of activity and one step closer to the actual occurrence of pre-term labor itself.

In any regards, the most important monitoring for pre-term birth is done by the woman who is pregnant and by keeping a daily record of contraction monitoring, this can be shared with her physician and discussed at each prenatal appointment.

#### ULTRASOUND MONITORING

Your physician will also utilize ultrasound evaluation of the cervix in his or her management scheme for pre-term birth. Ultrasounds performed at 14, 18-22 and 28 weeks are done routinely to evaluate the patient who is at high risk for pre-term birth. Again, changes in the cervix, which have before gone undetected by the obstetrician, can now be detected many weeks prior to the actual onset of pre-term labor. In other words, when ultrasound evaluation of the cervix reveals changes in the cervix that are dramatic, then certain types of treatment options can be implemented.

It is important, also, in the assessment of the cervix for pre-term birth, to have an ultrasound done during the first twelve weeks of pregnancy as a baseline. The cervix tends to lengthen as pregnancy advances and because of that a baseline ultrasound of the cervix in the first 12 weeks is important.

It is best to measure the cervix, by ultrasound, with the bladder half full and the ultrasound people will ask you to do that. In this situation, if the cervix measures less than or equal to 3.2 centimeters in length then that is a sign that you are at very high risk for pre-term labor. Also, if there is any "nipping" of

the membranes down into the cervical canal, that is also of significance. If the nipping measures greater than or equal to 6 millimeters in length that becomes a significant finding.

#### TREATMENT APPROACHES FOR THE PREVENTION OF PRETERM BIRTH

Your physician will implement a number of treatment options for patients who exhibit increased uterine contractions during the course of their pregnancy and who exhibit those signs which are suggestive of an increased risk for pre-term labor. These treatment options include the following:

- A. **BEDREST:** When the physician recommends rest, he or she wants you to lie on your left side with a pillow under your hips and legs and to lie flat. Sitting in a recliner is the same as standing up and is not of any help in decreasing uterine contractions. However if the weight of the baby can be removed off of the cervix then that can be very helpful in decreasing the number of uterine contractions.
- B. **HYDRATION:** Dehydration is a major cause of uterine contractions and by re-hydrating oneself or maintaining adequate hydration, uterine contractions can be decreased or prevented. In this regard, six to ten 12 ounce tumblers of water per day is the recommendation.
- C. **URINALYSIS:** If uterine contractions persist, the physician will order a clean catch urinalysis and a culture and sensitivity of the urine to rule out the presence or absence of a urinary tract infection. If these symptoms are caused by urinary tract infections, then simple antibiotics would be helpful for their treatment.
- D. **PROGESTERONE THERAPY:** If uterine contractions continue to be a problem then it is important that medical management be implemented. In this case, a serum progesterone level may be drawn and if the progesterone level is decreased then your physician may advise taking progesterone. It is important that this progesterone be the natural progesterone and not any progesterone substitutes. Natural progesterone is safe in pregnancy. It has the effect of quieting the uterus of these contractions.
- E. **TOCOLYTIC AGENTS:** These are agents which are designed specifically to decrease or eliminate contractions of the uterus. Some very specific medications have been developed over the last several years that are extremely good at doing this. The main two agents are Ritodrine and Brethine. Your doctor will probably recommend Brethine because it is considerably less expensive than Ritodrine. The usual dose for Brethine is 2.5 mg. every four hours around the clock. Higher doses may be used but only as an emergency measure and only upon physician recommendation.
- F. **CERVICAL CERCLAGE:** If the cervix is shown to be shortening or a particular risk category exists for pre-term birth, your physician may recommend a cerclage of the cervix. This is a shoe-string suture that is placed around the cervix. It is done as a surgical procedure in outpatient surgery. It is a relatively simple operation with very little risk and thus can be used very effectively as a part of the protocol. However, it must be used at the appropriate time and in the appropriate patient and it is generally based upon changes in the ultrasound pattern of the cervix.

- G. PULSED ANTIBIOTIC THERAPY: It is thought that some pre-term labor is due to a low grade infection present around the membranes of the baby. In situations such as that, the patient can benefit from the use of pulsed antibiotic therapy. This approach has been pioneered at the Pope Paul VI Institute. The medicine that has been used, for the most part, is a third generation antibiotic whose name is Cefobid. This antibiotic is usually started as an intravenous antibiotic given three times weekly. It can be given as an outpatient, and usually over a period of 7 to 14 days, the patient begins to feel better, the symptoms begin to go away and the antibiotic therapy may be decreased to two times per week.

Antibiotic therapy is used only in those patients where indicated and usually only where the tocolytic agents no longer are effective and then they are used in conjunction with the tocolytic agents.

- H. OTHER AGENTS: There are other medications or food supplements which might be of some assistance to you and your physician in the management of pre-term birth simply ask the physician about these.

#### A TEAM APPROACH

Pre-term birth can be prevented in the majority of circumstances. At the same time, accomplishing such a goal is a team effort. Thus it is extremely important that patients recognize the part that they play in this team. Their self-monitoring of uterine contractions is critical to *obstetrical health maintenance* and should become a part of everyone's obstetrical management.

The physicians and nurses are also a part of the team. *Good communication is the key.* Thus, all of the nurses of the Pope Paul VI Institute are trained in these signs and symptoms of pre-term birth and they are your key to maintaining good communication with the medical team. It is important for patients to recognize that they not only should be calling when there are changes in their uterine contraction monitoring but they are encouraged to do so. Thus, during normal operating hours, these calls should be made to the nursing staff who will convey this information to the physicians. During hours when the office is closed, the patient should not hesitate to call the physician who is on call so that these symptoms can be adequately assessed and proper treatment programs implemented.

#### LISTENING IS THE IMPORTANT VIRTUE

Perhaps the most important feature in preventing pre-term labor and pre-term birth is the virtue of *listening.* The pregnant woman must listen to her body as it speaks to her in these various ways. But, of equal importance, is the medical team's listening to the patient as she communicates those signs and symptoms to them. These are the keys to understanding and preventing pre-term labor. Thus, the Premature Prevention Program of the Pope Paul VI Institute has been established with the idea in mind of listening to their patients.

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