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MOTHERCARE GUATEMALA QUETZALTENANGO MATERNAL AND NEONATAL HEALTH PROJECT

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APPENDICES

1. Norms for prenatal care;
2. Norms for the management of premature rupture of fetal memorganes without labor
3. Norms for the management of premature rupture of fetal membranes with premature labor;
4. Norms for the conservative management of premature labor with intact fetal membranes;
5. Norms for the management of septic abortion;
6. Norms for the management of septic shock;
7. Norms for the management of pre-eclampsia/eclampsia
8. Norms for the green area (labor, delivery, and surgery);
9. Norms for labor and delivery management;
10. Norms for Caesarean section surgical technique;
11. Norms for the management of high risk neonatal and obstetrical cases at health centers and health posts;
12. Algorithms used at the workshop for training district personnel;
13. Training course for OBGYN Residents

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EXECUTIVE SUMMARY

From February 1991 until april of the same year, Dr. Raul Najarro Pelaez, Gynecologist and Obstetrician, travelled to Quetzaltenango in order to give tecnnical support to the Maternal-Neonatal Health Project underway in Guatemala s northwestern highlands. In general terms, the two principal activities carried out with Dr. Najarro s assistance were as follows:

a) Obstetrical care norms were revised and elaborated for the Hospital General de Occidente: "San Juan de Dios" (founded 1844). The main focus of the approach adopted for the production of ad hoc norms was on the health-area and regional hospital levels of care, and was directed towards institutionalizing the care at these levels for the following pathologies: post partum hemorrhage, pre-eclampsia and eclampsia, septic abortion, septic shock, premature labor and premature rupture of fetal membranes (the most prevalent and potentially lethal diseases in the area). Norms for prenatal care, assistance and care during labor, and for the performance of caesarean sections were also elaborated during the working sessions. The norms were actively produced by the hospital s personal under the guidance and supervision of the consultant.

b) A workshop was carried out to train health care personnel from 5 health districts belonging to the health area Quetzaltenango. During this event, the norms for management high risk obstetric and perinatal events were discussed

analyzed, such as: premature labor, premature rupture of fetal membranes, obstructed and prolonged labor, fetal malpresentation, pre-eclampsia, post partum hemorrhage and puerperal infection.

The consultant found that the hospital s conditions to attain the proposed goals have to be improved: the physical facilities as well as the supply of vital equipment and materials were inappropriate. The hospital currently undergoes an economic crisis. Planning, organizing and supervising of the permanent (on the job) training needs to be improved substantially. The same general situation holds for the district level of care.

The consultant recommends the normatized management of the more common medical conditions within the health region in order to optimize the use of available resources under the precepts of the risk approach to health care.

It is also deemed necessary to identify new strategies to achieve the necessary administrative and organizational modifications to improve the hospital s operative network in order to make it feasible for the norms to function properly. It is convenient to plan, organize and manage a program of permanent education that will guarantee the perpetuation of this intervention s process and impacts.

PURPOSE OF THE CONSULTANCY

The purpose of this consultancy was to revise norms, in order to develop and implement new and improved norms and health care policies for a technically and scientifically correct management of obstetrical patients at the Hospital and District levels of care. The consultant worked jointly with INCAP s researchers, and personnel from the Public, General Hospital as well as from the Health districts and Health Area of Quetzaltenango.

WORK PLAN TO BE CARRIED OUT AT THE HOSPITAL WITH DR. NAJARRO

1. Bibliographical revision of the major causes of maternal morbidity and mortality and of the risk approach in health care.
2. Development of a work plan with the hospital s residents and heads of the department of gynecology and obstetrics to develop norms, train personnel, and to evaluate the process and impact of the intervention at the hospital level.
3. Development of a detailed program for training OBGY Residents about the principal causes of maternal morbidity and mortality, including objectives, activities, contents, methodology, required time and resources, the assignment of responsibilities, and a test for evaluating the impact of the training intervention.
4. Revision of existing general norms and production of technically appropriate norms for the management of the

major causes of the hospital s maternal and perinatal morbidity and mortality.

5. Compiling of a monograph of selected material on the major causes of maternal morbidity and mortality and on the risk approach concept and methodology to be used as reference by the interns and shift physicians.

WORK PLAN TO BE CARRIED OUT AT THE DISTRICT LEVEL

1. Revision of norms for managing the major causes of maternal morbidity and mortality.
2. Revision of a training program for district personnel on the major causes of maternal morbidity and mortality.
3. Technical support for trainers and health care personnel training sessions .

BACKGROUND

INCAP s maternal and neonatal health project Quetzaltenango proposes an innovative solution to the principal maternal and neonatal health problems through the utilization of local resources that are already available within the health area. The project was developed after a series of diagnostic studies carried out by INCAP in the departments of Quetzaltenango and Sacatepequez. These studies identified the major health events that were associated maternal and neonatal mortality. They also registered actual health care practices and identified the amount deficiencies in the traditional birth attendant s care

risk pregnant women, their high risk neonates, and the labor process that involved either and or both. The formal health care system's flaws, from the perspective of their role in an adequate referral counter-referral health-care system were also studied and pointed out through these studies.

The project's interventions are being implemented in five of Quetzaltenango's ten health districts. The project's principal strategy is based on applied operational research of the local health services which intends to compare process and impact indicators generated by the intervened districts and by control districts. The project's approximate target population, to be reached during two years in the four intervened districts, is 34,000 fertile age women and 10,000 newborn subjects. The long range goal of the project in Quetzaltenango is to help the Ministry of Public Health to develop and validate primary health care strategies that reduce infant and maternal mortality. This project's objectives are:

<u>Health Care System (Hospital and Health Centers):</u>

1. To improve the identification and management of high risk prenatal, intrapartum, post-partum and neonatal conditions at community-based clinics and the regional hospital, including the implementation of adequate referral of cases to superior levels of care when necessary.

2. To improve working relations between the different levels of health care that are responsible for the detection and

management of high risk obstetric and neonatal cases (regional hospital, health center, health posts and traditional birth attendants).

7. To achieve the consistent use of revised norms for the identification, referral and management of high risk maternal and neonatal cases at Quezaltenango's health centers and regional hospital.

TRADITIONAL BIRTH ATTENDANTS (TBA's)

4. To improve the TBA's working knowledge and response to high risk situations, including hemorrhage or edema during pregnancy, prolonged/obstructed labor, fetal malpresentation, placental retention, depressed or hypoxic newborns, post partum hemorrhage and neonatal, as well as puerperal infection.

5. To decrease the frequency of potentially harmful practices, including the administration of oxytocin during labor and the use of manual examination of the pelvic organs.

MOTHERS/FAMILIES

6. To improve the identification of danger signs during pregnancy, labor, puerperium and the neonatal period by the relatives and attending TBA.

7. To promote and augment the searching behavior for appropriate health services when danger signs are detected, as well as to improve patient referral

adequate level of care when this is recognized as necessary by the relatives and/or the TBA.

8. To increase tetanus toxoid immunization coverage among pregnant and non-pregnant fertile age women.

9. To increase the number of pregnant women who receive and comply with iron supplementation during pregnancy.

POLICIES AND PROGRAMS

10. To assess the process of implementation of the project and its impact on neonatal and maternal health.

11. To recommend pertinent modifications to the health services currently available to mothers and neonates, specially in respect to those elements having to do with health personnel training related to the assistance of labor.

A model for application of the risk approach will be developed and tested according to the local health system s and its population s characteristics (resources, attitudes, etc.) in order to make its implementation and extension more feasible. The project will focus on the opportune identification and the correct management of high risk, obstetric and neonatal events, as well as on increasing prenatal care coverage, which will be necessary to detect as many of the cases that are in greater need of assistance as possible.

CONSULTANT'S ACTIVITIES

These were carried out in Guatemala City and Quetzaltenango. They can be summarized in chronological order as follows:

1. Understanding and compenetration into the details of the overall project through personal discussion with the principal investigator;
2. Establishment of the hospital's resources and general conditions for efficiency, through visits, interviewing the hospital's administrative authorities and its medical and paramedical personnel. Interviews with medical students and interns were carried out also.
3. Diagnosis of the major perinatal conditions which affect the region, through interviews with medical staff and revision of the project's preliminary findings.
4. Evaluation of the level of scientific and technical knowledge of the personnel subject to this intervention, who are normally in charge of managing the principal perinatal-maternal conditions that lead to morbidity and mortality in the region.
5. Elaboration of the training course program.
6. Presentation and discussion of the course's program with the participating personnel.
7. Elaboration of didactic auxiliary material and preparation of reference documents for the course.
8. Implementation of the course's contents.
9. Revision of norms.
10. Meetings with the project's team of investigators

managers for the production of a training program for district personnel.

11. Technical support during training sessions for trainers and health care personnel.

12. Direct involvement in the workshop carried out to train the district level health personnel.

13. Revision of the needs for technical assistance and collaboration in medical education with the director of JHPIEGO, Dr. Noel McIntosh.

METHODOLOGY

In order to describe the methodology in detail, the course's plan and program are included in the Appendix section. The expected result from the course was a complete set of norms designed and elaborated by the health personnel, who followed a guide prepared by the consultant to this effect.

RESULTS

The work plan was carried out in its entirety by the Department of Gynecology and Obstetrics and Dr. Najarro as had been intended. The revision and study of literature on the principal causes of maternal morbidity and mortality, the elaboration of norms, and the development of the training programs for the interns in this department were carried out completely and in collaboration with the project's team of investigators and the hospital's medical staff. A package of reference documents was prepared for and given to the interns and permanent staff of the Gynecology and Obste

department.

At the district level, the norms and the training program for the local health personnel were revised. Training sessions were also carried out at this level of the health system.

Specific activities:

1. Normatization of the principal causes of perinatal and maternal morbidity and mortality.
2. Implementation of the monitoring system and evaluation of the intervention.
3. Visits of the hospital personnel to the health districts.
4. Meetings among hospital and district personnel to develop a functional referral system.

CONCLUSIONS

The department of Gynecology and Obstetrics at the Hospital General de Occidente in Quetzaltenango reflects the overall crisis experienced by the health system throughout the country, which responds to the current socio-economic crisis.

Most of the causes of maternal and neonatal morbidity and mortality in the region can be prevented and treated with strategies and direct actions which can be implemented with the help of a permanent and formal education process for the health care personnel and the traditional birth attendants; with the normatization of the medical assistance for the most common pathologic conditions, and the establishment of a working referral/counter-referral system.

RECOMMENDATIONS

1. Perform the necessary administrative arrangements and communication diffusion of the norms in order to ensure their implementation.
2. Develop the information and control mechanisms necessar to feedback the process of normalization.
3. Improve the planning, organization and supervision activities for continuous education of the medical personnel through the incorporation of the educational efforts carried out internally with the country s universities.
4. Develop a process of continuous education and training for the region s traditional birth attendants with the Ministry of Health s direct involvement.
5. Make available the necessary technical and econom support for the implementation phase of the project to be efficiently carried out and its objectives reached.

APPENDIX 1

PRENATAL EVALUATION AND CONSEQUENCES (TREATMENT)

PRENATAL FACTORS TO EVALUATE	POTENTIAL ADVERSE EFFECTS FOR PREGNANCY	CLINICA PROGRAM
I AGE AND PARITY Age < 16 years	Unplanned pregnancy	Health education, early diagnosis of premature labor, early referral
Age > 35 years	Dawn's syndrome Fetoplacental dysfuction	Prenatal education Serial examinations of fetoplacental function.
Primigravida > 30 years (include those whose previous pregnancies were al abortions).	Gestional Hypertension Fetoplacental dysfunction	Serial examination of fetoplacental function. Active management of third stage of labor
Parity ≥ 5 (5 or more pregnancies > 20 weeks)	Post-partum hemorrhage Fetoplacental dysfunction	Serial examination of fetoplacental function. Active management of third stage of labor
Details of L.M.P. Ultrasound Evaluate placenta Amniotic fluid Diagnostic amniocentesis		
LMP unknows	Gestational age unknown	Clinial evaluation of gestational age, principally when there is risk of fetoplacental dysfunction
Vaginal hemorrhage since LMP	Molar pregnancy Bleeding in first trimester - Treatened abortion - Ectopic pregnancy - Missed abortion	Urinary chorionic Gonadotropins Ultrasound X ray of abdomen and thorax

PRENATAL FACTOS TO EVALUATE	POTENTIAL ADVERSE EFFECTS ON PREGNANCY	CLINICAL PROGRAM
OBSTETRIC HISTORY Instrauterine or neonatal death	Depending on cause of death: fetal malformation, prematurity placenta dysfunction	Laboratory exams: TORCH titers, glucose tolerance test. Determine cause of detach from old chart. Evaluation of fetoplacental unit may be indicated. Estriol.
Small for gestation age	Newborn small fo-gestational age. Fetoplacental dysfunction.	Ultrasound and amniocentesis if LMP in doubt. Serial exams of fetoplacental function may be indicated. Describe.
Large for gestational age	Gestational diabetes, large fetus, dystocia, birth trauma.	If indicated: glucos tolerance curve, intensive care in labor, pre- and post-prandial glucose.
Fetal anomaly	Congenital malformation, hereditary disorder	It may be indicated to speak with neonatologist before 14 weeks. Genetic counselling, amniocentesis, ultrasound.
Antibodies in previous pregnacies	RH incompatibility	Indirect changes in 18, 28 and 38 weeks.
Hypertension/eclampsia	Gestational hypertension Renal disease	Patient weight at first visit, fundiscopix exam, BUN and creatinine, urine, protein and uric acid may be indicated.
Spontaneous abortion X 2 Premature labor Previous cerclage	Cervical incompetence	Cerclage may be indicated: early diagnosis of premature labor, early referral. If tocolysis is anticipated, exams of placental function are indicated

PRENATAL FACTORS TO EVALUATE	POTENTIAL ADVERSE EFFECTS ON PREGNANCY	CLINICAL PROGRAM
OBSTETRICAL HISTORY Previous cesarean	Uterine rupture	Admit scheduled according to gestational age. Discuss route of delivery with specialist.
Post partum hemorrhage Retained placenta	Recurrence of problem	Admit to specialized hospital
Labor less than 4 hours	Birth prior to admission Asphyxia, neonatal hypothermia	Admit to hospital prior to initiation of labor.

PRENATAL FACTORS TO EVALUATE	POTENTIAL ADVERSE EFFECTS ON PREGNANCY	CLINICAL PROGRAM
III. MATERNAL HEALTH Chronic disease	Effects of disease on pregnancy and pregnancy on disease	Plan of management by obstetrician, internist and neonatologist.
Hypertension/proteinuria Test of coat (Arterial pressure of 140/90 or proteinuria on 2 or more ocassions non more ocassions non pregnant)	Hypertension in pregnancy Renal disease Feto-placental dysfunction	Examine for pre-eclampsia BUN at first visit Hypotnsive drugs may be indicated Serial exams of feto-placental function.
Infertility with medical treatment	Anxiety during pregnancy	Reassurance via ultrasound, good prenatal care. Ryle out multiple or ectopic pregnancy.
Uterine anomalies including fibroids	Premature labor, malpresentation degeneration of fibroids Threatened abortion	Ultrasound, bedrest, betaminetics for increased uterine activity, exams of fetoplacental function
Habitation far from hospital of without help	Birth en route, neonatal asphyxia, hypothermia	Schedule admission prior to iniciation of labor.
Family history of diabetes	Gestational diabetes	Glucose tolerance test during pregnancy. On admission and at 36 weeks also to rule out DM if necessary.
Family history or anomaly	Fetal malformation	Genetic counselling at 14 weeks Amniocentesis at 16 weeks may be indicated Ultrasound Alpha-feto protein at 8-16 weeks.

PRENATAL FACTORS TO EVALUATE	POTENTIAL ADVERSE EFFECTS ON PREGNANCY	CLINICAL PROGRAM
IV. INITIAL EXAM Arterial pressure 140/90	Gestational hypertension	(Uric acid determinations. BUN, creatinine; Rule out common causes of hypertension
Maternal weight < 100 pounds	Fetoplacental dysfunction	Serial exams of feto placental function may be indicated
Maternal weight > 150 pounds	Gestational diabetes Hypertension	Diet advice or consult with dietician, glucose tolerance test, BUN, creatinine in first visit
Cardiac murmur	Adysptomatic cardiac disease	Consult cardiologist
Uterus small or large for gestional age by LMP	Multiple pregnancy Wrong LMP Molar pregnancy Missed abortion	Ultrasound Test of placental function
Detection of other pelvic masses	Uterine fibroids or ovarian cysts	Ultrasound
Rh negative	Rh isoimmunization	Determine blood group RH, coombs test. 18, 28, 36 weeks.
Leukorrhea	Rupture of membranes Neonatal infection	Wet mount and culture of secretion
Absence of fetal movements	Incorrect dates, LMP Molar pregnancy Fetal demise	Ultrasound, Doppler

PRENATAL FACTORS TO EVALUATE	POTENTIAL ADVERSE EFFECTS ON PREGNANCY	CLINICAL PROGRAM
Hemoglobin less than 10 grs %	Anemia of pregnancy Toxemia Multiple pregnancyu Diabetes (Consult hematologist Complete blood count Peripheral smear Serum iron and other tests may be necessary)	Ultrasound Doppler
Poor weight gain (less than 1 lb/week after the 30 week) Weight loss (since the last prenatal visit)	Fetoplacental dysfunction (applicable only in women with adequate weight)	Serial exams of placental function if low o no intrauterine growth Dietitic advice
Proteinuria (more than 1 +)	Urinary infection, renal disease, pre-eclampsia	Uric acid, urine culture, BUN and creatinine
Glycouria	Low renal threshold Gestational diabetes	Glycosuria in the second sample of urine of the day is indication for glucose tolerance test
Bactiuria (more than 10 colonies in urine culture)	Phyelonephritis	Antibiotic therapy BUN, creatinine
Arterial pressure > 160/100	Gestational hypertension, renal disease. Feto-placental dysfunction	Uric acid, BUN, creatinine, bedrest evaluation of feto placental function Evaluate hospitalization
Anti-RH antibodies	Rh isoimmunization	Amniocentesis, ultrasound
Large for gestational age	Macrosomia Multiple pregnancy Hydramnios Incorrect gestational age	Ultrasound Abdominal X-ray Bloodglucose
Items small for gestational age ech of uterinne growth	Fetoplacental dysfunction IUGR Fetal demise	Seria.exams of fetoplacental function after 28 weeks Ultrasound
Polyhydramnios	Fetal malformation Premature labor	Blood glucose X ray of abdomen Ultrasound Depending on case, schedule admission

PRENATAL FACTORS TO EVALUATE	POTENTIAL ADVERSE EFFECTS OF PREGNANCY	CLINICAL PROGRAM
Fetal malpresentation at term (< 34 weeks)	Malpresentation in labor, uterine rupture, cord prolapse	External cephalic version may be indicated. Schedule admission.
Fetal head not engaged at 40 weeks. Multiparas.	Disproportion in labor, placenta previa	Birth in specialized hospital. Pelvimetry.
Third trimester Vaginal bleeding	Previous placenta Placental abruption	Ultrasound exam of fetoplacental function
Premature labor	Premature delivery	Admission to hospital for betamimetic therapy on fetal monitoring Schedule admission

APPENDIX 2

PROTOCOL FOR PRE-TERM RUPTURE OF MEMBRANES, WITHOUT LABOR

ADMISSION

Admit to antepartum complications service

- Liberal diet
- No tocolytics
- No steroids
- No antibiotics
- White blood cell count every 24 hours (leukocytosis is >15,000 leukocytes/mm)
- Examination with sterile speculum upon admission to emergency by the most experienced resident
- Endocervical and vaginal culture upon admission to emergency
- Papanicolau of amniotic fluid
- Fern test.
- Ultrasound upon admission (to rule out fetal anomalies and to estimate gestational age) if the case merits this and if possible
- C-reactive protein control every 48 hours if possible
- Oral temperature every 6 hours
- Evaluate uterine activity daily every 6 hours
- Evaluate fetal movements every 6 hours
- Urine culture
- Evaluate for induction of labor at 37 weeks of pregnancy
- Be prepared for labor or signs of infection
- If the presentation is breech, evaluate for termination of pregnancy depending on the type of breech

  * Frank breech; follow management outlined above

  * Footling breech, pregnancy between 25-34 weeks; evaluate for termination of pregnancy via cessarian or induction

DISCHARGE

Discharge from the hospital those patients who have adequate conditions in their houses and environments for home care: adequate facilities for hygiene, persons to help in home and to transport patient to the hospital for outpatient visits and emergencies.

This group of patients will be seen in the prenatal clinic every week.

- Give patient a good educational plan regarding her care at home, including the following:

- Mark the thermometer at 37.3 degrees C (higher than 37.3 degrees C will be considered abnormal). Take temperature twice a day
- Monitor fetal movements
- Watch for foul-smelling vaginal secretions
- No vaginal douching
- No coitus
- Decrease physical activitiy
- Do not discharge patients with breech presentation

APPENDIX 3

[illegible] PREMATURE RUPTURE OF [illegible] AND PREMATURE LABOR

CONSERVATIVE MANAGEMENT

1. Admit to labor and delivery

2. Maintain in bed in left laberal decubitus

3. NPO for 4 hours, then re-evaluate depending on evolution

4. Vital signs with fetal heart tones recorded every 15 minutes: arterial pressure, maternal heartbeat, fetal heartbeat, pulse

5. Watch for:
   Consciousness
   Activity
   Fetal tachycardia
   Hypotension
   Hydration
   Fever
   Fetal movements
   Frequency of uterine activity
   Hemorrhage

b. Laboratories:
   White blood count every 24 hours
   C-reactive protein every 48 hours
   Blood culture
   Urine culture
   Urine analysis
   Other (depending on associated medical problem; e.g.: diabetes, toxemia)
   Gram stain + culture of amniotic fluid
   Fern test of amniotic fluid
   Peripheral smear

7. Solutions

   a. 5% dextrose 500 cc plus 2 ampules of partisusten (1 mg) to begin at 5 drops per minute, increasing according to medical criteria

   b. 5% dextrose 500 cc plus 10 ampules of vadosilan (100 mg) to begin at 20 drops per minute, increasing according to medical criteria

If the above-mentioned medicines are contraindicated, may use magnesium sulfate as follows:

a) Dextrose 5% 250 cc plus 4 grams magnesium sulfate in a bolus over 20 minutes; then

b) Dextrose 5% 500 cc plus 10 grams magnesium sulfate at 33 drops per minute.

8. Medications

- Dexamethasone
  12 mg IM every 2 hours for 2 doses in pregnancies < 35 weeks
- Ampicilin
  1 gram IM stat and 500 mg IV every 6 hours
- Gentamycin
  80 mgIM stat and every 8 hours
- Clindamycin
  600 mg IV stat and every 6 hours

Depending on availability of antibiotics at the moment use ampicilin and gentermicin or gentamicin and clindamicin.

9. Specials

a) Examine with sterile speculum by resident

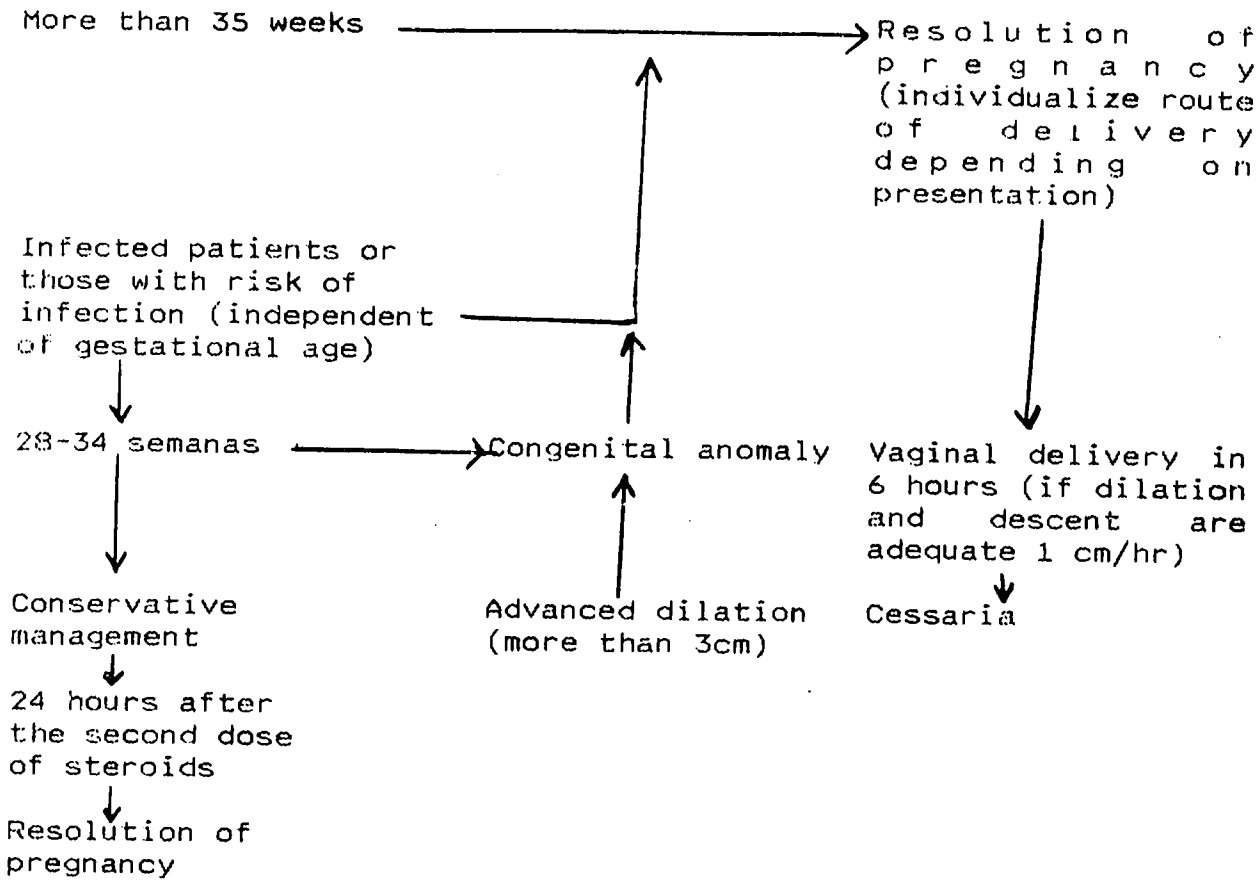
b) Ultrasound if possible

c) Flat plate X-ray of abdomen if there is doubt about the presentation

d) Oral temperature curve recorded every 4 hours

10. Schedule delivery 24 hours after the last dose of steroids and advise the Department of Pediatrics

PROPOSED PROTOCOL FOR MANAGEMENT OF PATIENTS WITH PREMATURE RUPTURE OF MEMBRANES AND PREMATURE LABOR



APPENDIX 4

PROTOCOL FOR CONSERVATIVE MANAGEMENT OF PREMATURE LABOR WITH INTACT MEMBRANES

Admission

1. Admit to labor and delivery

2. Absolute bedrest in left lateral position

3. Diet:
   NPO for 4-6 hours then re-evaluate
   if the patient cannot take oral liquids after 4 hours, give intravenous liqids

4. Vital signs:
   Record every 15 minutes - BP, pulse, fetal heart rate

5. Monitor for:
   - Mental status
   - Pulse ≥ 120 beats/minute
   - Arterial pressure ≤ 90/50 mmHg
   - Uterine actiity (assess for 10 mi. every 20 min)
   - Fetal heat rate < 120/min > 160/min or variations in heartrate (decelerations/accelerations)
   - Hydorrhea
   - Fetal movements
   - Vaginal bleeding
   - Nausea and vomiting

6. Laboratories:
   - Complete blood count, blood group + RH
   - Urinanalysis and urine culture
   - VDRL
   - C-reactive protein (depending on ability of patient to pay)
   - Gram stain and culture of endocervix
   - Other (depending on associated medical problems)

7. Ultrasound — To diagnose age, weight, congenital anomalies, presentation, placental maturity, amniotic fluid volume, fetal movements and respiration (depending on ability of patient to pay)

8. Non-stress test — Perform on all patients > 30 weeks if case on merits

9. Amniocentesis — Monitor fetal movements
   When the obstetrician considers this necessary

10. Hydration — In case of false labor (1 glass p.o. every 15 minutes for one hour)

II. Medications: If there are no contraindications to the use of betamimetics

a) Isoxuprine chlorhydrate: 100 mg (10 ampules) in 500 cc 5% dextrose -begin at 10 drops/minute. Strictly monitor materna lBP and pulse, fetal heartrate and uterine contractions every 5 minutes and evaluate progress of patient to raise, maintain or lower I.V. rate.

As reference parameters, maternal pulse should not be greater than 120 beats/min., fetal heat rate not more than 160 beats/min and maternal blood pressure not less than 90/55 mmHg.

b) Fenoterol: 1-2 mcg/min I.V. in 5% dextrose as follows: 2 ampules of fenoterol-partisusten (0.5 mg) in 5000 cc 5% Dextrose at 5 drops (15 minidrops) per minute. Increase by 5 drops (15 minidrops) every 30 minutes to a maximum of 16 drops per minute if necessary, only if maternal pulse remains < 120/min., fetal heartrate < 160/min and materal BP > 90/55.

c) In patients with absolute medical contraindications to the use of beta-mimetrics, use magnesium sulfate as follows:
- Initial dose: 4 grams magnesium sulfate in 250 cc 5% dextrose via IV infusion over 30 minutes
- Maintenance dose: 10 grams magnesium sulfate in 500 cc 5% dextrose at 33 drops/minute (2 grams/hour)

d) Phenobarbitol: 100 mg IM stat, then 100 mg IM every 12 hours for 4 doses

e) Antibiotics: According to the presentation and evidence of infection, use ampicillin 1 gram IVstat, then 500 mg IV every 6 hours. Re-evaluate culture results: if positive, continue treatment for 10 days.

If there is a contraindication to the use of ampicillin, use erythromycin 500 mg p.o. every 8 hours. Reevaluate following receipt of culture results (as above).

f) **Steroids:**
Dexamethasone IM every 12 hours for 2 doses, in pregnancies 28-34 weeks who have pulmonary immaturity on amniocentesis

After uterine contractility has significantly decreased for a minimum of 8 hours, continue uterine inhibition with oral medication, beginning oral regimen 1 hour before discontinuing I.V. medication.

Transfer Orders

- Transfer to post-partum
- Absolute bedrest
- Regular diet
- Vital signs every 30 min x 2 hours; then, if normal, per routine
- Monitor for:
  BP < 90/55 mmHg
  Maternal pulse ≥ 120/min
  Fetal heart rate ≥ 160/min
  Hydrorrhea and/or vaginal bleeding
  Uterine contractions ≤ every 10 minutes
  Urinary output every 12 hours

- Request admission laboratories .
  Ultrasound, nonstress test and amniocentesis (according to established indications)
- Consultations with other services if necessary
- Medications:
  Fenoterol - Partisusten 5 mg p.o. every 6 hours
  Isoxuprine -Ritodrine
  Ampicilin 500 mg every 8 hours (only in those patients with justification for use, eg. positive cultures)
  Phenobarbitol 100 mg IM every 12 hours x 4 doses
  Steroids: Evaluate use after obtaining gestational age and weight by ultrasound or test of pulmonary maturity via amniocentesis

If, while on oral uteroinhibitors, the patient again presents with uterine contractions and there is no contraindication to a second course of IV uteroinhibitors, transfer patient once more to labor and delivery to re-initate IV treatment (only once). If the patient presents with cervical dilation grater than 3 cm, transfer to labor and delivery and allow patient to labor. Deliver vaginally if there is no contraindication to this. The resident must deliver the patient using and ample apisiotomy. Notify pediatric resident, who must also be present at delivery.

If fetus is in breech presentation, see protocol for preterm breech. If there is premature rupture of membranes (PROM) see specific PROM protocol.

Conditions for discharge

- Disappearance of signs and symptoms that prompted admission. Minimum time of 72 hours asymptomatic after successful utero inhibition; general physical exam normal.

- Without associated pathology; not undergoing treatment for same.

- Continue oraltocolyis until clinic visit 1 week late at which

patient should be evaluated by second year obgyn resident, who may stop tocolytics. Re-evaluation every week.

Patient education regarding:

- Monitoring of uterine activity
- Monitoring of fetalmovements
- Signs and symptoms of preterm labor
- No sexual activity
- Hydrorrhea
- Vaginal bleeding
- Decreased fetal movements
- Importance of correct compliance with medical treatment and clinic visits
- Decrease in physical activity
- Easy accessto ospital
- Delivery in hospital

APPENDIX 5

DIAGNOSIS

History:

History of amenorrhea, vaginal hemorrhage and/or history of manipulation (aborptive maneuvers)

Clinical:

Usual sympthomatology of vaginal hemorrhage (moderate) and colicky pain.

The cervix is usually open. There are signs of infections. The vaginal bleeding may be malodorous and often there is fever and generalized malaise

Admission orders

1. Admit to gyn. septic ward

2. NPO

3. Maintain in bed in semi fowler's position

4. Strict vital signs every 30 minutes until 2 hours after surgical treatment

5. Watch for:
   State of consciousness and hydration
   Hypo and hyperthermia
   Tachycardia, tachypnea
   Cyanosis
   Hemorrhage

Initial measures

Strict control of vital signs

6. Laboratories:

   Blood groups = RH
   Complete blood count
   BUN & creatinine
   Gram stain & culture of endocervix
   Urine analysis, urine culture
   Blood culture x 2

Platelet count, PT, PTT, fibrinogen, clot retraction (clotting time)
Tests of hepatic function (SGOT,SGP, bilirubin)
peripheral smear

Catheter:
Swan-Ganz catheter (if necessary)
Foley catheter
Intravenous catheterization

7. Medications
Antibiotics:
- Clindamycin
- Gentamycin

Oxytocics:
20 units in 500 cc lactated ringers (Hartman's solution) at 10-20 drops per minute.

- Crystalline penicillin Antitetanous prophylaxis
- Gentamycin
- Clindamycin

- Ampicillin
- Clindamycin
- Gentamycin

8. Specials

Intake and output recorded hourly
Nasogastric
Catheter and continous suction if necessary
Foley catheter
Intravenous angiocath #16 or #18 or central line if necessary
Rx: Individualize

Radiologic Studies

Flat plate of abdomen / Radiograph of thorax, seated: depending on on each case.

If there are signs of uterine perforation or a foreign body do a total abdominal hysterectomy

Treatment

Medical treatment

- Liquids
  - Normal saline
  - Hartman's solution

- Whole blood depending on bloodloss

- Packed red cells if HCT <30%
- Medications
  - Clindamycin 400-800 mgIV every 6 hours
  - Gentamycin 3-5 mg/kg/d in 3 doses; or
- Use of combinations from protocol for septic shock

Others:

- Use of oxytocis
- Antitetanous prophylaxis
  - Human 350-500 IU
  - Equine 3,000-6,000 IU

  Both subcutaneous

  Depending on previous immunization

  Place simultaneously in different arm

Surgical treatment

Dilation and currettage

4-6 hours after initiation of antibiotics and oxytocis

Post-surgical management
Hematocrit post D & C

POST-SURGICAL MANAGEMENT

Good evolution

Poor Evolution

Vital signs-hourly

If nl: follow for 6 hours then per routine

If abnl: tachycardia, tachypnea, hypotension, fever

Continue antibiotics already initiated

If no signs of resistance, continue for 7-10 days

No response: if cultures show resistance, change. Failure of antibiotics plus deterioration of patient.

Control of urinary excretion

If nl for 6 hours: more than 30 cc/hr, discontinue Foley

If abnormal for 3 hours, accentuated decrease in urinary excretion

Both treat medically with hydration

Response

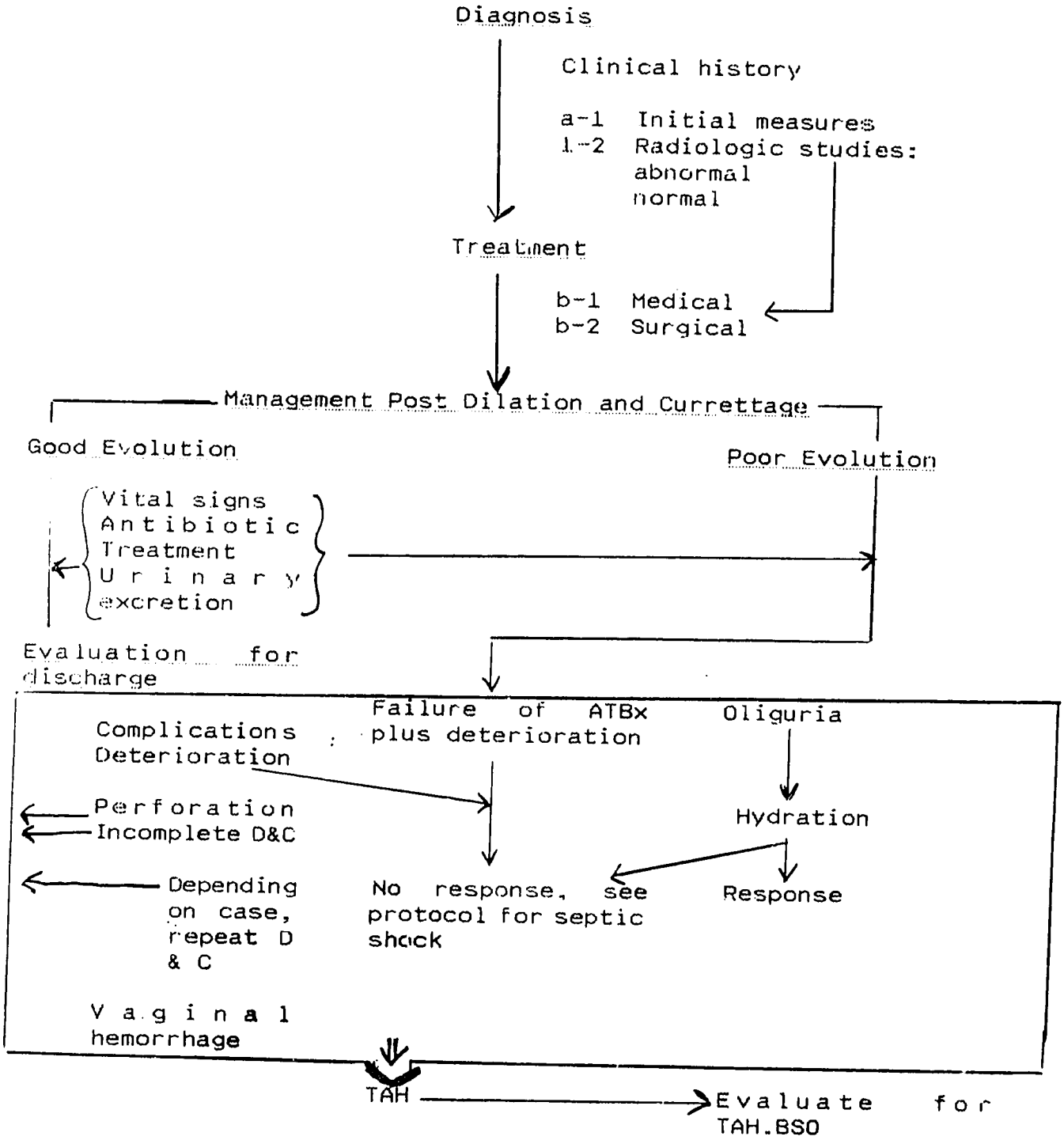
YES

NO

Evaluate for TAH or TAH-BSO

Evaluate for discharge: 72 hours post D&C if all vital signs and capillary filling are normal

PROTOCOL FOR MANAGEMENT OF SEPTIC ABORPTION



APPENDIX 6

MANAGEMENT OF PATIENT INSEPTIC SHOCK FROM ADMISSION

Admission Orders

1. Admit to: (Septic-Intensive)

2. Absolute bedrest

3. NPO till next orders.

4. Vital signs every 30 minuts,recorded

5. Monitor for:
   State of consciousness, pain, fever, hypotension, dyspnea, cyanosis, tachycardia, urinary excretion

6. Laboratories:
   Complete blood count, ESR, platelet count, PT, PTT, fibrinogen, peripheral smear, urineanalisis renal function labs, transaminases, bilirubin, sodium and potassium, uric acid, glucose, arterial blood gas and pH, urine culture and sensitivity, blood cultures (two, 15 minutes apart), aerobic and anaerobic cultures of infected tissues and secretions, gram stain of secretions. Above dependent on ability of hospital and/or patient.

7. Medications:
   Antibiotics:
   Choose depending on availability (see alternatives below)

   Sensitivites:
   Evaluate change of antibiotics 48-72 hours after initiation.

   Methylprednisolone: 1 gram IV x 1 dose. Use only in stage A or B

   Digitalis: Use according to criteria (see below)

   Dopamine: Use according to criteria (see below)

8. **Management of solutions:** According to CVP (see below).

9. X ray of abodomen: AP and lateral
   X ray of chest: PA, seated

10. EKG (request from internist)

11. Foley catheter

12. Central line placement for CVP readings

13. Strict hourly input and output, recorded

14. Consult other specialties according to patient needs.

15. Evaluate for surgical treatment within 3 hours

16. Present case to chief of service.

17. Report changes immediately.

Management of solutions

Use central venous pressure (CVP):
normal is 8-12 cm H_2O.
If less than normal:
Administer 5-20 ml/min for 10 minutes. If the CVP rises higher than 5 cm, stop infusion. If the CVP does not exceed 2 cm or falls, give a second load. Use crystalloids

Management of antibiotics

Scheme No. 1:
Ampicillin 1 gram IV every 4 hours
Clindamycin 900 mg IV every 8 hours
Gentamycin 3 mg/kg/day. Adjust maintenance dose according to creatinine

Scheme No. 2:

Crystalline penicillin 3 million units IV every 3 hours
Chloramphenicol 1 gram IV every 6 hours
Gentamycin 3 mg/kg/day IV in 3 doses

Scheme No. 3:

Metronidazol 1 gram I.V. loadig dose then 500 mg every 6 hours, give each dose over 20 minutes
Gentamycin 3 mg/kg/day I.V. in 3 doses

Scheme No. 4:

Metronidazol 1 gram I.V. loading dose then 500 mg every 6 hours. Give each dose over 20 minutes
Cefotaxime sodium 2 grams I.V. every 4 hours

Management of digitalis

Use of digitalis is recommended in patients with tachycardia or with a CVP > 15 cm H_2O.

Digitalization:
Oral route with Digoxin or Lanatoside C

- **Digoxin:**
  1 mg followed by 0.25mg every 6 hours until digitalized
- **Lanatoside C:**
  6 mg/24 hours, divided into 3 doses. If I.V. route is used, the initial dose is one half of the digitalization

Maintenance dose for digoxin is 0.375 mg/divided in doses.
Maintenance dose for lanotoside C is 1.2 mg/24 h.

Management of dopamine

To be given via I.V. infusion in patients with perfusion deficiencies, hypotension and/or oliguria

Low doses (0.5 - 2 mcg/kg/min) provoke renal vasodilation
High doses (>10 mcg/kg/min) raise total peripheral resistance
Doses of 1-2 mcg/kg/min raise minute volume, heart rate and arterial pressure

Each ampule contains 200 milligrams
Doses > 10 mcg/kg/min have an alpha adrenergic, inotropic effect

Prepare the infusion with 400-800 mg in 500 ml 5% dextrose which equals 800 or 1.6 mcg/ml

The administered dose depends on the speed of the infusion in drops/minute

Surgical treatment

Submit all patients to surgical treatment who are oliguric 4-6 hours after septic abortion or curettage, or with hemodinamic compromise.
With tubo-ovarian abcess or adnexal abcess, all patients who have not responded after 24hours must be evaluated for treatment with total abdominal hysterectomy

Indications for hysterectomy

Anuria
Uterine **perforation**
Uterine **size** ≥ 14 weeks of gestation
Evidence of hemolysis
Use of caustic agents, corrosives, oils or detergents
Clostridia Welchi as causal agent
Presence of foreign body in uterus or abdominal cavity

Indications for hysterectomy with bilateral Salpingo-oophorectomy

If adnexae are involved
Extensive adnexal disease
Acute pelvic infection with abcess formation

Patient has passed reproductive age (post-menopausal)

In chrorioamnionitis

When vaginal birth has not been achieved in 12 hours (maximum), perform caesarean section

In extreme cases, perform caesarean hysterectomy with ligation of inferior vena cava and ovarian veins

Management of acidosis

Blood pH must be known (

If pH < 7.2, sodium reserve is 9 mEq

Donot use sodium lactate, which requires aerobic metabolism, which is compromised

one ampule equals 44 mEq sodium bicarbonate

Administration:

Calculate dose in mEq=0.4/kg for desired level of bicarbonate

Prepare sodium bicarbonate solution in saline at 167 mEq/liter

Other dosage: 20 ml or 3mEq/Kg over 60 minutes

Surgical management

All patients in initial stages of shock (A and B) must be evaluated in 3 hours to decide whether to proceed with surgical tratment of infectious focus.

APPENDIX 7

[illegible] TREATMENT OF PRE-ECLAMPTIC AND [illegible] ECLAMPTIC PATIENTS

CLASSIFICATION

1. Pre-eclampsia

a) Mild

b) Moderate

c) Severe

2. Eclampsia

PARAMETERS FOR DIAGNOSIS

MILD PRE-ECLAMPSIA

1. Weight gains of > 3 pounds/month/ (or one pound/week)
2. Arterial pressure within normal limits or mildly elevated; 110-120/80-85 mm Hg.
3. Proteinuria no more than 2 grams/24 hours.

MODERATE PRE-ECLAMPSIA

1. Greater tendency towards weight gain (>4 pounds/month)
2. Diastolic pressure 90-100 mm Hg.
3. Proteinuria 2-5 grams/24 hours
4. Edema

SEVERE PRE-ECLAMPSIA

1. Diastolic pressure ≥ 100 mm Hg
2. proteinuria > 5 grams/24/hours
3. Edema

TREATMENT

Mild Pre-eclampsia:

- Ambulatory

  a) See weekly in outpatient clinic. Check for proteinuria

  b) Bedrest in semi fowler and left lateral positions

  c) Low salt diet

  d) Laboratories:
     - d.1. Complete blood count and differential, erythrocyte sedimentation rate, blood groups and RH
     - d.2 Urinanalysis
     - d.3 VDRL
     - d.4 BUN
     - d.5 Creatinine
     - d.6 Uric acid
     - d.7 Glucose
     - d.8 Sodium and potassium
     - d.9 Shielded chest X-ray
     - d.10 EKG
     - d.11 Fundiscopic exam
     - d.12 If proteinuria present: 24 hours urine for total protein
     - d.13 Platelet count

  e) Medications:

     - e.1 Phenobarbital 50 mg P.O. every 12 hours

MODERATE PRE-ECLAMPSIA:

- **Hospitalization**

  a) Do not use diuretics
  b) Complete clinical history
  c) Admission
  d) Absolute bedrest in semi-fowler, left lateral position
  e) 2 gram low sodium diet
  f) Record vital signs every 2 hours
  g) Daily weight
  h) Record intake and output every 2 hours

  i) Watch for:

- Rise in blood pressure
- Convulsions
- Epigastric pain
- Headache
- Change in mental status
- Contractions
- Change in fetal heart rate

j) Laboratories:
Complete blood count and differential, erythrocyte sedimentation rate, blood groups and RH

- Urinanalysis every 48 hours
- BUN
- Creatinine
- Uric acid
- Glucose
- VDRL
- Sodium and potassium
- Prothrombin time
- Bleeding time
- Clot retraction time
- Platelet count
- Fibrinogen
- Alkaline phosphate
- Transaminases
- Peripheral smear

k. EKG

l. Chest X ray

m. Fundiscopic exam by ophthalmologist

n. Medications

a) Apresoline 10-20 mg p.o. or I.M.every 6 hours

ñ. I.V. solutions

- 10% dextrose to maintain I.V. access, replace volume; 3 way tubing

o. Present case to chief of service

p. Report changes immediately.

SEVERE PRE-ECLAMPSIA

a. Do not use diuretics

b. Complete clinical history

c. Admission

d. Absolute bedrest in semi fowler, left lateral position

e. Liquid diet in adequate quantities

f. Vital signs recorded every hour

g. Foley catheter, urinary output recorded every 2 hours

h. Record intake and output every hour

i. Place central line and record central venous pressure hourly

j. Watch for:
- Rise in blood pressure
- Convulsions
- Epigastric pain
- Headache
- Changes in mental status
- Uterine contractions
- Fetal heart rate

k. Laboratories
- Complete blood count and differential, erythrocyte sedimentation rate
- Blood group and Rh, cross match
- Urinanalysis every 48 hours
- BUN
- Creatinine
- Uric acid
- Glucose
- VDRL
- Sodium and potassium
- Prothrombin time
- Bleeding time
- Clot retraction time
- Fibrinogen
- Platelet count
- Alkaline phosphate
- Transaminases
- Bilirubin

l. EKG

m. Chest X ray

n. Fundiscopic exam by ophthalmologist

ñ. Medications

a) Apresoline - initial dose 5 mg I.V followed by doses of 5, 10, 15 or 20 mg I.V. every 15 minutes as needed to decrease blood pressure.

o. In symptomatic patients, initiate Magnisium Sulfate I.V., 4 grams in 250 cc dextrose 5% over 20 minutes

p. Magnisium sulfate should be continued for 24 hours post-partum

q. If the patient has convulsions, use Diazepan 10 mg I.V.

r. I.V. solutions: 120 cc/hour (40 drops/minute). If oxytocin is necessary, use a concentrated solution, preferably dextrose.

s. If the patient has been taking antihypertensive medication during her pregnancy, continue with the same dose.

t. Present case to Chief of Service.

u. Report changes immediately.

ECLAMPSIA

a. Do not use diuretics

b. Complete clinical history

c. Patient in special room with intensive care

d. Absolute bedrest in semi fowler, left lateral position

e. Liquid diet in adequate quantities

f. Use 3 catheters
- Central line with central venous pressure every hour
- Foley catheter, every 2 hours
- Nasogastric tube

g. Vital signs:
- Arterial pressure, pulse, respirations every 30 minutes
- Rectal temperature every 4 hours

h. Record intake and output every hour

i. Watch for:

- Rise in blood pressure
- Convulsions
- Epigastric pain

- Headache
- Changes in mental status
- Uterine contractions
- Fetal heart rate

j. Laboratories
- Complete blood count and differential, erythrocyte sedimentation rate
- Blood group and Rh, cross match
- Urinanalysis every 48 hours
- BUN
- Creatinine
- Uric acid
- Glucose
- VDRL
- Sodium and potassium
- Prothrombin time

- Clot retraction time
- Bleeding time
- Platelet count
- Fibrinogen
- Bilirubin
- Alkaline phosphatase
- Urinary sediment

k. EKG

l. Chest X ray

m. Fundiscopic exam by ophthalmologist

n. Medications

a) Apresoline - initial dose 5 mg I.V followed by doses of 5, 10, 15 or 20 mg I.V. every 15 minutes as needed to decrease to decrease blood pressure

b) Nifedipine 10 mg sublengual; evaluate every 15 minutes, strict monitoring of arterial pressure and fetal heart rate

c) Valum (diazepam) 10 mg I.V. stat or

d) Diphenyhydantoin 250 mg I.V. stat every 6 hours

e) If there is magnesium sulfate available continue magnesium sulfate for 24 hours post partum

ñ. I.V. solution: at 120 cc/hour (40 drops/minute). If oxytocin is necessary use a concentrated solution,

preferably dextrose.

o. If the patient has been taking antihypertensive medications during her pregnancy, continue with the same dose.

p. Present case to Chief of Service.

q. Report changes immediately.

APPENDIX 8

GENERAL NORMS FOR STERILE (GREEN) AREA

DEFINITION OF STERILE AREA

The sterile area of obstetrics includes the following areas:

1. Dressing or changing room (locker area)
2. Handwashing area (sinks)
3. Central supply
4. Labor ward
5. Delivery room
6. Obstetrical operating room

All pesonnel who work in or enter this area must follow the following rules:

a. Clothing: You must wear a complete green outfit including:

   1. Cap
   2. Mask
   3. Shirt or dress
   4. Pants
   5. Shoe covers

   The use of other clothing under the green outfit (sweater, pants, etc.) is not permitted.

b. The use of the green outfit is exclusively for the sterile (or green) area. You may not go outside of this area wearing the green outfit.

c. Upon leaving the green area you must change clothes.

d. You may not bring food or drinks into the green area.

e. You may not wear jewelry in the green area.

f. You may not smoke in the green area.

g. It is absolutely prohibited to ingest alcoholic beverages in the green area.

h. No sitting or lying on the beds or Gurney's of labor and delivery.

i. Two beds will be specified for the use of medical students during night call who may sleep if permitted by the highest ranking doctor in the green area.

j. Personnel will leave to eat according to established hours, rotating turns and always leaving a group responsible for the service.

i. Medical consultants and nursing supervisors who enter the green area must always use, as a minimum:

- Shoe covers
- Cap and mask
- Green gown

m. All personnel who work in the green area are obliged to ensure that these norms are strictly followe. Persons who do not comply with these norms will be first notified verbally, and, if they continue to disobey the rules, will be suspended for short periods and finally expelled completely from the area.

APPENDIX 9

MANAGEMENT OF LABOR AND DELIVERY

Vaginal birth of breech presentation is preferable to a caesarean when attented by an experienced doctor; otherwise a caesarean is preferable. In primigravid patients, a caesarean should be performed.

Perform caesarean for shoulder or brow presentation.

Important: Perform ultrasound and consult neonatalogist first.

When hydrocephalus is severe, aspirate transabdomially or transvaginally. Confirm diagnosis first.

- Perform caesarean for prolonged labor in twin gestation, regardless of prsentation. No augmentation, no amniotomy.

- Before initiating oxytocin to augment labor, the following must be ruled our: fetal malpresentaiton, congenital anomaly, twin gestation.

- The person ordering oxytocin must record in the patient chart that the presentation is cephalic, the fetal head is normal and there is only fetus.

Specials

- Use oxytocin with extreme cautionin the multipara.

- Only use oxytocin in the hospital

- The three classic causes of abnormal labor are:

  1) **Inefficient** uterine activity

  2) **Persistent** occipit posterior position
  3) **Cephalopelvic** disproportion

  Of these three only inefficient uterine activity is corrected by oxytocin. The others are resolved by caesarean section

- The duration of labor is defined as the number of hours a woman is in the labor area in the hospital, from the time of admission until the birth of her baby.

- The average duration of labor in a primigravida without

medical intervention is 8 hours. In the multipara it is 6-9 hours

- Do not use more than 2 doses of analgesic in labor.

- Perform a caesarean in all women who after 12 hours of active, monitored labor have not had their baby or are not very close to delivery.

- The single most important event in labor is the diagnosis of labor.

- The diagnosis of labor is made when a woman comes to the hospital with uterine contractions, cervical dilation and complete effacement of the cervix.

- Admit all patients with ruptured membranes.

- Labor contractions are those capable of producing changes in the effacement and dilation of the cervix.

- If a patient presents to the hospital with "labor" and the doctor is not sure of the diagnoses, he must invite her to stay overnight for observation.

- Vaginal exams should be made upon admission and every hour for 3 hours; following this, vaginal exams should be at the discretion of the examiner.

- Minimum acceptable progress in cervical dilation must be 1 cm/hour in the primigravida and 1.5 cm/hour in the multigravida.

- Progress in labor must be recorded on the partogram

- The parameter of progress in the first stage of labor is cervical dilation.

- The parameter of progress in the second stage of labor is descent of the fetal head.

- Forceps are only indicated when the head is on the pelvic floor.

- Caesarean section is the route of delivery when the head does not descent, the occiput is transverse.

- When there is complete dilation but the head does not descend and there is not adequate uterine activity, oxytocin may be tried cautiously for no more than one hour in the absence of further descent.

- When amniotomy and oxytocin do not re-establish the normal course of dilation or descent of the presentation with

adequate contractions within one hour, perform caesarean.

- When there is no progress in cervical dilation, one hour after admission with at least one centimeter, amniotomy may be performed to accelerate labor.

- Begin oxytocin 1 hour afterwards, only if the presentation is vertex, there is no meconium and the patient is primigravida.

- Do not use oxytocin in the multipara, except if authorized by a Chief or upper level resident.

Rules for the use of oxytocin:

1. The concentration is 10 u oxytocin/1 liter Hartmans solution for primigravidas, 5 u oxytocin/1 liter Hartman's solution for multigravidas.

2. It is preferable to use a minidrip. One drop equals 3 minidrops.

3. Do not exceed 60 drops/minute.

4. Begin at 40 drops/minute and increase by 5 drops every 15 minutes until adequate labor is achieved.

APPENDIX 10

[illegible] FOR CESARIAN SECTION

1. General considerations:

1.1 Cessarian sections will be performed by attending physicians and residents in all three years of training; the selection of the surgeon will be according to experience and the dexterity required to successfully perform the operation.

1.2 The surgeon will evaluate the patient and determine the fetal position, presentation, station and fetal heart rate.

1.3 Hand washing (surgeon, assistants, scrub nurse): wet hands and forearms, then apply surgical soap, scrubbing with hands. Rinse, taking care that water drains from hands to elbows. Reapply surgical soap, scrubbing with a brush for five minutes; first scrub hands and fingers, cleaning beneath fingernails, then scrub wrists, and finally forearms to the elbows. Rinse taking care that water drains from hands to elbows. Dry with sterile towel from hands to elbows without returning to hands. Immediately discard towel.

2. Anesthesia

2.1 The anesthetists or technologist places a No. 16 angiocath in the patient and proceeds to hydrate the patient and administers anesthesia.

2.2 Types of anesthesia

General:
For use in emergency cessarian sections; i.e. those cases where maternal-fetal risk is imminent: bleeding placenta previa, acute fetal distress, cord prolapse, etc.

Epidural:
For use in planned elective cessarian sections, and in unplanned cessarians for indications witout immediate maternal-fetal risk except the impossibility of resolving the pregnancy by vaginal route. For adequate effect, specific equiment must be available.

3. Patient preparation

3.1 Pre-operative

- Place #18 Foley catheter prior to transfer of patient to opeating suite. Maintain Foley during procedure. Remove Foley at end of operation only if urine is clear and output is adequate and at the discretion of the surgeon.

- Wash surgical area (abdominal wall from costal margin to thighs, and genitals) with surgical soap, minimum 3 minutes, prior to transfer to operating suite.

- Place cap adequately covering hair; placeleg covers up to 2 cm. abgove knees.

- Transport to surgical area on a stretcher with clean, dry bedclothes.

3.2 In the operating room:

Antisepsis:

- Surgeon asks circulator for antisepsis set-up.

- Surgeon or assistant puts on sterile size 8 gloves, to be discarded at end of procedure.

- With the patient in dorsal decubitus position, apply alcohol and then methaphen with gauxe grasped by ring forceps to the abdominal wall, more or less from the costal margin to the inguinal area, starting cephelad from the midline laterally to the anterior axillary line, including the vulva and the upper one third of the thighs including inner thigh. Discard ring forceps at end of procedure.

Placement of the sterile field:

- Request count of instruments and lap pads from scrub nurse and circulator.

- Place sterile towels around operative site, leaving sufficient space (8 cm.) to make surgical incision.

- Place split sheet and whole sheet, which should not touch floor.

- Surgeon and assistants remove talc from gloves with wet lap pad, and discard lap pad. Inspect gloves for holes.

- Surgeon places two dry lap pads on either side of

surgical field, parallel to the incision, to keep surgical field clean and dry. Replace with moist lap pads once fascia has been completely incised.

4. Abdominal wall incision

4.1 General aspects:

- When the patient has a previous surgical scar on the abdominal wall compatible with the execution of a cessarian, the skin incision should be over this, resecting the scar tissue.

- The selection of the type of abdominal wall incision should be the most appropriated for the type of uterine incision and for the extraction of the fetus according to fetal lie, weight, and estimted gestational age, as well as the characteristics of the mother.

- Transverse skin incisions are preferable in all primigravidas, especially young patients without old surgical scars. It is necessary to individualize each case.

4.2 Midline infraumbilical incision

- Surgeon checks level of anesthesia

- Surgeon places traction on skin with left hand above umbilicus and incises skin in midline 15 cm with external scalpel (23 or 21 blade) in dominant hand. Incision is deepened with internal scalpel (23 o 21 blade) to reach the fascia. Hemostasis of bleeding vessels is achieved with 6-0 cotton.

- Anterior rectus sheath dissected to achieve 2 cm width exposure.

- Fascia incised longitudinally as follows: Incise 2 cm length in middle third of fascia with scalpel. Introduce the blades of mayo scissors into this buttonhole, between the fascia and the rectus muscle, alternately opening and closing the blades to separate these structures. Incise fascia superiorly with the Mayo scissors then repeat process inferiorly.

- Separate rectus and pyrimidalis muscles in the linea alba by blunt and sharp dissection to expose the transverse fascia and underlying peritoneum.

- In the superior aspect of the incision, dissect the transverse fascia and preperitoneal fat to reach

the peritoneum.

- Elevate the peritoneum between two hemostatic forceps 2 cm apart; palpate the peritoneum between the forceps to be sure there are no intra-abdominal structures

  The surgeon then makes a small opening in the peritoneum between the forceps with metzenbaum scissors, inserting the first two fingers into the peritoneal cavity to elevate the peritoneum and guide the enlargement of the incision to the superior and inferior margins of the fascial incision. Preperitoneal tissue is dissected before hand, and the vesico-peritoneal fold is identified by transillumination.

4.03 Transverse incision or Pfannestiel

- The incision is made in the supra-symphyseal fold following an arcing trajectory and extending just beyond the lateral border of the recti externas.

- The assistant and surgeon put lateral traction on the skin such that the scalpel (blade # 23 or 21) does not drag on the skin.

- The incision is deepened through the subcutaneous tissue and a 2 cm wide area of the underlying aponeurosis is clered using blunt and sharp dissection. Bleeding vessels are ligated using 6-0 cotton.

- The fascia is incised with internal scalpel in a transverse direction in the midline for 2 cm. The blades of Mayo scissors are introduced between the fascia and the underlying tissue, alternately opening and closing the scissors to separate these structures. The fascia is then incised along the entire length of the incision.

- The cut edge of the fascia is grasped with straight kocher clamps inferiorly and superiorly on either side of the midline. The fascia and underlying rectus muscle are separated bluntly (with the finger or scalpel handle); superiorly almost to the umbilicus and inferiously to the superior border of the pubis. Separate the line alba with Mayo scissors.Clamp, cut and ligate the blood vessels that run between the fascia and the muscle with 6-0 cotton.

- Separate the rectus muscle and dissect the

transverse fascia bluntly, producing abduction of the muscles.

- Dissect the transverse fascia, preperitoneal fat and peritoneum as described for a midline, infraumbilical incision.

5. Uterine incision:

5.1 Explore abdominal cavity, especially the uterus and adnexa; identify the lower uterine segment (visually and by palpation), then place rolled lap pads at both sides and the fundus of the uterus.

5.2 Incision of uterine peritoneum and bladder detachment

- Grasp the reflection of the visceral peritoneum between the bladder and the anterior uterine wall at the midline and make a 1-2 cm buttonhole with metzenbaum scissors.

- Introduce curved metzenbaum scissors between the serosa and the myometrium, opening and closing them to separate a band of serosa 2 cm wide. Incise the serosa in a transverse arcing manner (approximtely 12 cm).

- Grasp the inferior edge of peritoneum with a hemostatic clamp and bluntly separate the bladder from the underlying myometrium. The separation should be no more than 5cm. deep.

- Repeat above procedure with upper edge of peritoneum.

- Keep the bladder retracted below with a bladder retractor.

5.3 Lower segment incision

- Transverse incision (Munro-Kerr technique): With the internal scalpel, make a small transverse incision in the myometrium of the lower uterine segment at the midline, taking care not to incise deeply enough to reach fetal parts. This incision should be approximately 4 cm above the reflected fold of the bladder. Introduce the first two fingers into this incision, then with a bandage scissor enlarge the incision laterally with a half-moon shape.

- Longitudinal incision (Kronig-Opitz technique): With the internal scalpel make a buttonhole incision in the midline of the lower uterine segment. Introduce the first two fingers into this incision and with a bandage scissors extend the incision longitudinally superiorly above the bladder.

- Corporal or classical incision. The abdominal wall incision should ideally be para-umbilical and longitudinal with two thirds of the incision below the umbilicus and one third below. Begin the uterine incision in the midline 5 cm. above the bladder. Make a 2 cm buttonhole, vertically, introduce the first two fingers into the incision to serve as a guide, and extend the incision with bandage scissors to the uterine fundus.

6. Extraction of fetus, placenta and membranes

6.1 Cephalic presentation

- With a hemostatic clamp, break membranes if they are still intact.

- Slide one hand into the lower uterine cavity over the fetal head with the fingers and the palm parallel to the incision, exerting transabdominal fundal pressure at the same time.

- Once the fetal head is extracted, suction the mouth and nose with a bulb suction.

- Extract the shoulders with gentle traction accompanied by fundal pressure. The rest of the body is delivered easily.

- Clamp cord with Kocher clamps and divide cord with bandage scissors.

- Place ring forceps on the superior edge of the uterine incision on either side of the midline and remove the placenta.

- Inspect the state of the placenta and membranes.

- Visually inspect the uterine cavity. Clean fragments of membranes, placenta or blood clots with a lap pad if necessary.

6.2 Breech presentation:

- Introduce hand into the uterine cavity, find the

lower extremities and place traction on these. In a frank breech, elevate the buttocks and try to stimulate the cardinal movements of a vaginal breech delivery.

6.3 Transverse presentation:

- Introduce hand into uterine cavity, find the lower extremities and place traction on these as for a footling breech presentation.

6.4 Use of oxytocics or methylergonovine:

- Administer immediately after delivery of fetal head.

- Oxytocin 10 u diluted in 10 cc IV solution; slow infusion

- Oxytocin Su iv. directly, slow infusion.
- Methylergovine 0.2 mg IV

6.5 - Prophylactic antibiotics

The surgeon requests administration upon clamping of the cord if necesary

Closure of uterus:

7.1 Closure of lower segment

- Request lap pad count

- Place ring forceps on superior and inferior borders of incision, near the vertices and on bleeding points. If incision is asymmetric place ring forceps on torn edges to bring incision together adequately.

- Place hemostatic sutures with 2-0 vicryl at angles of incision or torn extensions, beginning and ending with suture outside the uterus.

- Place invaginating sutures with 2-0 vicryl.

- Close the vesico-uterine peritoneum with continuous 3-0 vicryl inverting edges.

7.2 Closure of uterus in corporal (classical) cessarian:

- Request lap pad count

- Place continuous subendometrial suture (deepest third of myometrium) with 0 vicryl.

- Place second continuous suture with 0 vicryl in the remaining muscular layer (superior third of myometrial thickness)

- Place a third layer of continuous suture of 2-0 vicryl at the peritonal level, inverting edges.

8. Closure of abdomen

- Remove lap pads

- Requst new count of lap pads and surgical equipment

- Clean abdominal cavity and inspect for adequate uterine contraction

- Place hemostatic clamps at the lateral borders of the parietal peritoneum and at the superior and inferior apices. Place suture of 3-0 vicryl above superior border of peritoneum internally using first two fingers as guide, and continue suturing peritoneal edges as follows: The needle must enter and exit internally to achieve correct application of serosa to serosa.

- The surgeon ligates any bleeding points with 6-0 cotton.

- Approximate rectus muscles with interrupted sutures of 2-0 vicryl if the icision was midline. If the incision was pfannenstiel, approximate with 2-0 vicryl in U form.

- Close the fascia with non absorbable or delayed absorption suture (Dexon or Vicryl 0) with continuous sutures 1 cm wide and 1 cm apart in the aponeurosis. Figure of 8 sutures may be used.

- Internal retention sutures are indicated in patients with previous scars, obesity, malnutrition, anemia, cancer, diabetes, steroid treatment, EPOC. Smith-Jones sutures with Dexon or Vicryl 0 may be used.

- The subcutaneous tissue does not require sutures if the thickness is 2 cm or less. If greater than 2 cm in thickness, place loose sutures of 2-0 vicryl to obliterate the dead space.

- Close the skin with simple sutures of 4-0 or 5-0 cotton or with subcutaneous sutures of 4-0 or 5-0 vicryl.

- Clean the abdominal wall with an antiseptic

solution of metaphen and place two sterile gauze pads on the incision. Place adhesive tape over gauze.

- Request new count of lap pads and instruments.

- Transfer patient to recovery room and after observation and stabilization, transfer patient to post-partum in normal state of consciousness.

- The surgeon writes the note, notes or operative record on the specified pages.

APPENDIX 11

INSTITUTE OF NUTRITION OF
CENTRAL AMERICA AND PANAMA
INCAP

MINISTRY OF PUBLIC HEALTH
AREA OF HEALTH
QUETZALTENANGO

PROTOCOL FOR MANAGEMENT OF HIGH RISK OBSTETRIC AND NEONATAL CASES FOR HEALTH CENTERS AND POSTS

FIRST DRAFT
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PROTOCOLS FOR MANAGEMENT IN NEONATALOGY

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[redacted] FOR MANAGEMENT: VAGINAL BLEEDING IN PREGNANCY CAUSED BY PLACENTA PREVIA AND ABRUPTIO PLACENTA

WHAT IS IS (DEFINITION)

Vaginal bleeding during pregnancy whose cause may be placenta previa or placental abruption

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Placenta previa
   - Hemorrhage (may be scant or heavy)
   - No pain
   - Soft uterus

2. Abruptio placenta
   - Hemorrhage (may be scant or heavy)
   - Pain
   - Tense uterus

WHAT TO ASK THE PATIENT

1. When did the bleeding start? Is there a lot or a little bleeding?
2. Is there pain? Where? When did the pain start? Is the pain strong?
3. Have you noticed if the uterus is soft or tense (hard)?
4. Have you had this problem in other pregnancies?

WHAT TO EVALUATE IN THE PATIENT

1. Look on the outside of the vagina to see if there is bleeding and how much?

2. Palpate the uterus to determine if it is soft or tense.

REFERRAL CRITERIA

Any amount of vaginal bleeding in pregnancy is abnormal. Refer all pregnant patients with vaginal bleeding.

TREATMENT - MANAGEMENT

Referral process:

1. Explain everything to the family.

2. Refer to the hospital with a referral note.

3. Begin I.V. solutions if it is possible.

IF THE REFERRAL IS NOT ACCEPTED:

1. Explain to the family and the patient that there is serious danger to the mother and her baby if they do not go to the hospital..

2. Recommend absolute bedrest.

IMPORTANT CONSIDERATIONS

When there is vaginal bleeding in pregnancy, the life of the mother and baby may be in danger. Therefore, you must evaluate the following:

1. Monitor fetal heartbeat and fetal movements to see if the baby is alive.

2. Check maternal blood pressure and pulse to determine hypotension secondary to hemorrhage.

3. The delivery must always be in the hospital.

4. Rapidly find transportation for the transfer of the patient while evaluating her.

PROTOCOL FOR MANAGEMENT: PREMATURE RUPTURE OF MEMBRANES

WHAT IT IS (DEFINITION)

It is when the membranes break (leaking of amniotic fluid) before the beginning of labor.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Abnormally heavy discharge of liquid from the vagina.
2. The liquid may be clear, transparent or may be pink, yellow, greeen or brown.
3. The liquid may leak constantly or only when walking, arising from sitting or lying down, or when pushing.
4. Fever (not always) when there is an infection.

WHAT TO ASK THE PATIENT

1. Has she noted an abnormally heavy vaginal discharge (liquid)?
2. Does the liquid leak constantly? If not, when (when she walks, pushes)?
3. Does she feel like she is urinating without being able to control it or stop it?
4. Is the fluid clear, transparent, or is it red, pink, yellow, green or brown?
5. Does she feel like she has a fever?

WHAT TO EVALUATE IN THE PATIENT

1. Inspect the vagina (without doing an internal exam) to see if liquid is dripping out, how much, what color.
2. Take temperature.

REFERRAL CRITERIA

Refer to hospital when:

- The mother has had ruptured membranes for 12 hours or more and is not in labor
- Any time there is a fever
- The baby is not moving

TREATMENT - MANAGEMENT

Referral process:

1. Explain the dangers of premature rupture of membranes to the family
2. Write a referral note and refer to the hospital.

If the referral is not accepted:

1. Explain the dangers of premature rupture of membranes to the family.
2. Bedrest as much as possible (the patient mus tbe lying down because of the danger of cord prolapse).
3. Periodically visit the patient in her home.

IMPORTANT CONSIDERATIONS

When membranes are ruptured there is greater danger of infection and cord prolapse. Both conditions carry a high risk of death for the baby and serious illness for the mother (uterine infection).

PROTOCOL OF MANAGEMENT: PRE-ECLAMPSIA

WHAT IT IS (DEFINITION)

It is hypertension secondary to the pregnancy, with a diastolic pressure of 90 mm Hg or an elevation of 30 mm Hg* above the patient's normal diastolic pressure; a systolic pressure greater than 140 mm Hg or an elevationof 15 mm Hg* above the patient's normal systolic pressure.

*Estos son al referse.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Elevated blood pressure (may be the only sign).
2. Edema of hands, face, lower extremities.
3. Headache.
4. Dizziness or blurred vision.
5. Nausea, vomiting and or epigastric pain.

WHAT TO ASK THE PATIENT

1. Does she feel swollen? Where? When did it start?
2. Does she have a headache? Since when?
3. Does she have blurred vision or is she dizzy? Since when?
4. Does she have nausea, vomiting or epigastric pain (pain in the mouth of the stomach)?
5. Did she have high blood pressure before the pregnancy or in other pregnancies?
6. Does she suffer from chronic high blood pressure (diagnosed by a doctor)?

WHAT TO EVALUATE IN THE PATIENT

1. Take her blood pressure (if the pressure is high, retake it in 1-2 hours to determine if it remains high).

2. Look for edema in the face, hands and legs.

REFERRAL CRITERIA

Refer to the hospital if:

- The mother's blood pressure is ≥ 140/90 mmHg*

- There has been a rise in systolic blood pressure > 15 mmHg* or diastolic blood pressure> 30 mmHg*

* Son al reverse

TREATMENT - MANAGEMENT

REFERRAL PROCESS:

1. Explain everything about pre-eclampsia to the family.

2. Refer to the hospital with a note of referral.

3. Follow the patient when she returns from the hospital.

IF THE REFERRAL IS NOT ACCEPTED:

1. **Bedrest** as much as possible (try to lie on left side)

2. **Drink** as much liquid as possible, without caffeine (no coffee, coca cola, regular tea). The best liquids are juice, water with lemon and honey, natural teas (especially chamomile) and whole milk.

3. Eat well. Parsley and cucumbers (with the skin) are good to eat. If possible, eat beans, eggs, meat, milk, cheese, yogurt, tortillas.

4. If the mother has advanced symptoms of pre-eclmpsia, she should return to the heatlh center or post (or to the hospital) for continued follow-up. These signs and symptoms are: dizziness, blurred vision, nausea and vomiting, stomach

pain, convulsions.

IMPORTANT CONSIDERATIONS

1. If the obstetrical patient (during prenancy, delivery or post partum) consulves, her life and the life of her baby are in dager and she should be referred immediately to the hospital. Because of this, early referral and treatment are vital.

2. It is important to take the blood pressure of all pregnant women at each visit, as this will help detect pre-eclampsia in its early stages.

PROTOCOL FOR MANAGEMENT: PREMATURE LABOR

WHAT IT IS (DEFINITION)

It is regular contractions that produce dilation of the cervix prior to 38 weeks of gestation.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

Regular contractions (every 3-4 minutes) that last at least 45 seconds.

Important note: If it is active labor, the contractions increase in intensity and frequency when the mother is walking.

WHAT TO ASK THE PATIENT

1. When is your due date? Are you sure?

2. Ask all of the questions related to premature rupture of membranes.

3. Contractions:
   When did they start?
   How often?
   Are they strong or note?

4. Is there bleeding? If yes, how much?

5. Ask the mother about her previous pregnancies (has she had other premature deliveries or neonatal deaths)?

WHAT TO EVALUATE IN THE PATIENT

1. Palpate the uterus to determine the frequency, duration and strength of the contractions as well as the position of the fetus (if it is noncephalic or a twin gestation).

2. Measure the fundal height to try to estimate the gestational age.

3. Evaluate fetal heartrate.

4. Inspect the outside of the vagina to see if there is leakage of amniotic fluid or blood.

REFERRAL CRITERIA

If the pregnancy is les than 38 weeks, refer to hospital.

TREATMENT MANAGEMENT

Referral process:

1. Explain everything to the family.

2. Refer to hospital with a referral note

IF THE REFERRAL IS NOT ACCEPTED:

1. If you detect twins or malpresentation in addition to premature labor, try again to convince the family to go to the hospital.

2. Instructions for the mother:

   - Rest and drink a lot of liquids (chamomile tea is good to decrease contractions)

   - Instruct the family regarding the care of a premature baby (see standard for premature babies), also telling them:
     * Do not bath the baby

     * Immediately put the baby to the breast (as in all births) if she/he can suck

     * Maintain the baby's temperature

     * If he baby is very small, convince the familly to bring the baby to the health center or post for antibiotic injections and evaluation

IMPORTANT CONSIDERATIONS

Remember that premature babies have a higher risk of sepsis, hypothermia and hypoglycemia. For these rasons, the educational plan for the family is very important (see management of prematurity).

PROTOCOL FOR MANAGEMENT: MALPRESENTATION

WHAT IT IS (DEFINITION)

It is when the baby is not in cephalic presentation.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Fetal movements in the pelvic region or below the umbilicus.

WHAT TO ASK THE PATIENT

Where do you feel the baby move? (When the baby is breech, the mother usually feels the movements n the pubic area or the area below the umbilicus).

WHAT TO EVALUATE IN THE PATIENT

1. Measure fundal height.

2. Palpate the uterus to determine where the fetal head is.

   - If the fetus is in breech position:

     * The head will be in the highest part of the uterus (where the buttocks would be if the baby were in cephalic presentation)

   - If the fetus is in transverse position:

     * The fetus will be in a horizontal position instead of vertical resulting in the abdomen appearing broader and the fundal height less.

     * The head will be on one side of the uterus.

REFERRAL CRITERIA

Always refer to the hospital for delivery if the presentation is breech or transverse after the 36th week of pregnancy.

TREATMENT

Referral process:

1. Explain everything to the patient.

2. Refer to the hospital for delivery.

IF THE REFERRAL IS NOT ACCEPTED:

Explain to the family and the mother that serious danger exists for the mother and her baby if they do not go to the hospital.

IMPORTANT CONSIDERATIONS

The mother:

In the mother, the uterus may rupture as a result of prolonged labor, causing massive hemorrhage and the death of the mother and baby. Because of this it is imperative that the mother havea caessarian section in the hospital a soon as possible.

The baby:

The baby cannot be born in the transverse position. Therefore, if a caesarian is not performed as soon as possible the baby dies of asphyxia. Prolapse of cord or an extremity may also occur.

PROTOCOL FOR MANAGEMENT: PROLONGED LABOR

WHAT IT IS (DEFINITION)

- Active labor for more than 12 hour in multiparas and more than 18 hours in primiparas.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

Regular contractions (every 3-4 minutes) that last at least 45 seconds for more than 12 hours in multiparas and more than 18 hours in primiparas.

Important note:
If it is active labor, the contractions increase in intensity when the mother is walking and she cannot sleep through the contractions.

WHAT TO ASK THE PATIENT

1. When did the contractions begin (hour)? How frequent are they? How long do they last (each one)?

2. When did the membranes (water) break? (This data can help confirm the diagnosis of active labor). In many cases the membranes do not break until the birth of the baby.

WHAT TO EVALUATE IN THE PATIENT

1. The frequency, duration and quality of the contractions.

2. Inspect the vagina to determine the presence of liquid and/or blood.

3. Determine the fetal position (see Protocol for Malpresentation)

REFERRAL CRITERIA

Refer to the hospital if the mother has active labor more than 12 hours (multipara) or more than 18 hours (primipara).

TREATMENT MANAGEMENT

Referral process:

1. Explain the dangers of prolonged labor to the family.

2. Write a referral note and refer immediately to the hospital.

IF THE REFERRAL IS NOT ACCEPTED

1. Inform the family of the real risk of death of the mother and baby.

2. Hydrate patient (give water with sugar, honey, orange juice, etc.)

3. Recommend that mother walk and rest alternately.

IMPORTANT CONSIDERATIONS

When there is prolonged labor, the baby's life may be in danger; therefore, you must evaluate:

1. Fetal heart rate.

2. The presence of meconium (green or brown amniotic liquid). If it is present, meconium indicates that the baby already has fetal distress and may die soon.

PROTOCOL FOR MANAGEMENT: POST-PARTUM HEMORRHAGE

WHAT IS IS (DEFINITION)

It is abnormally heavy hemorrhage after the birth of the baby. It may be seen immediately or up to the 6 weeks post-partum. The most frequent causes are: retained placenta, retention of portions of placenta, uterine atony (failure of uterus to contract) and vaginal or cervical lacerations.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Hemorrhage
2. Hypotension
3. Tachycardia } Late signs
4. Somnolence, dizziness, diaphoresis
5. Weakness

WHAT TO ASK THE PATIENT

1. What time (hour) was the delivery?
2. How much blood has been lost?
3. When did the bleeding start?
4. Is there nausea, somnolence, dizziness?
5. Did the placent deliver?

WHAT TO EVALUATE IN THE PATIENT

1. Vaginal bleeding
2. If the placenta has delivered
3. If the placenta delivered is complete
4. Blood pressure
5. Pulse

6. State of consciousnes

7. Palpate the uterus

REFERRAL CRITERIA

1. Retained placenta > 30 minutes without hemorrhage

2. Retained placenta with hemorrhage (refer immediately; do not wait 30 minutes)

3. Retention of portions of placenta

4. Abnormally heavy bleeding for any cause: uterine atone, cervical or vaginal laceration.

5. Uterine atone (failure of uterine contraction).

6. Hemorrhage of bright red blood (although it may be in small quantities), that persists or passage of large clots.

TREATMENT

Referral process:

1. First, find transportation immediately

2. Explain everything to the family

3. Vigorously massage the uterus

4. Give intramuscular injection of syntocin or ergotrate to the mother.

5. Try to encourage the delivery of the placenta by pushing up on the uterine fundus while placing gentle traction on the cord following the angle of the birth canal

6. If the placenta has delivered, massage the uterus to keep it firm and express or remove blood clots.

7. Give the mother plenty of liquids to drink in the health post or center and during the trip to the hospital.

8. Refer to the hospital with complete documents.

9. Begin I.V. solutions if possible.

IF THE REFERRAL IS NOT ACCEPTED

1. Explain to the family and the mother that serious danger exists for the mother and baby if they do not go to the hospital.

2. Vigorously massage the uterus

3. Give intramuscular injection of syntocin or ergotrate to the mother.

4. Try to encourage the delivery of the placenta by pushing up on the uterine fundus while placing gentle traction on the cord following the angle of the birth canal

5. If the placenta has delivered, massage the uterus to keep it firm and express or remove blood clots.

6. Give the mother plenty of liquids to drink in the health post or center and explain the importance of continuing to drink liquids. This increases the circulating volume of blood and may prevent hypotension.

IMPORTANT CONSIDERATIONS

Post-partum hemorrhage may plae the mother's life in danger. Therefore, you must evaluate:

Maternal blood pressure and pulse

Remember that this is the primary cause of maternal mortality and that rapid, aggressive action is necessary to save the life of the mother.

The majority of maternal deaths from hemorrhage occur in the first 12 hours post-partum.

PROTOCOL FOR MANAGEMENT: POST-PARTUM UTERINE INFECTION

WHAT IT IS (DEFINITION)

It is a uterine infection after delivery caused by the entry of microbes into the vagina and uterus during delivery and post-partum.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Fever
2. Lower abdominal pain (very important sign; the pain is different from afterbirth pains)

WHAT TO ASK THE PATIENT

1. When was your baby born?
2. Do you have a fever? When did it start?
3. Do you have lower abdominal pain?
4. Do you have foul-smelling vaginal discharge, with pus?

WHAT TO EVALUATE IN THE PATIENT

1. Evaluate the lower abdomen and pelvis to determine if there is pain on palpation.
2. Take the temperature.
3. Inspect the vagina to see if there is vaginal discharge with foul odor or pus.

REFERRAL CRITERIA

Refer to hospital for any positive finding in the history or physical (high fever, fever longer than 24 hours).

TREATMENT MANAGEMENT

If referral is accepted:

1. Educate the family

2. Give initial dose of antibiotics (in the external border of the thigh, not in the gluteals) in the health center or post of:
   Penicillin 800,000 units IM
   or
   Ampicillin 500 mg IM
   } Plus chloramphenicol 500 mg p.o

3. Give acetaminophen

4. Insist on an increase in oral intake of fluids

5. Refer to hospital with a referral note.

IF REFERRAL ISNOT ACCEPTED:

1. Explain the risks the mother incurs with this disease to the family.

2. Give initial dose of antibiotics in the health center or post of:
   penicillin 1.6 Million units IM initial dose (in the external **border of the** thigh, not in the gluteals) or Ampicillin 1 grm IM
   Plus
   Chloramphenicol 1 gram p.o.
   Plus
   Penicillin 800,000 units IM every 12 hours for 10 days

   Or

   Ampicillin 500 mg every 6 hours for 10 days
   Plus
   Chloramphenicol 500 mg p.o. every 6 hours for 10 days.

3. Giveacetominophen

4. Increase oralintake of fluids

5. Visit the patient everyday in her home if possible

6. Good vulvar hygiene. Change underclothes frequently.

IMPORTANT CONSIDERATIONS

This infection can produce an infection called septic shock. The symptoms are: fever or hypothermia, tachycardia, air hunger, confusion and/or anxiety, hypotension. This situation is very serious and requires immediate transfer of the patient following initial dose of antibiotics (see scheme mentioned in Post-Partum Infection)

PROTOCOL FOR MANAGEMENT: PREMATURITY AND LOW BIRTH WEIGHT

WHAT IT IS (DEFINITION)

Prematurity

Is it a baby born before 9 months of pregnancy.

Low birth weight

It is a baby who weighs less than 2500 grams (5 pounds 8 ounces). It may be premature or term.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

Prematurity

Baby is born before 38 weeks (before 9 months)

Low birth weight

1. Weight of neonate less than 2500 grams (5 lb. 8 oz)
2. Neonate looks small

WHAT TO ASK THE MOTHER

How many months of pregnancy had you completed when your baby was born?

WHAT TO EVALUATE

Premature babies

1. Gestational age by last menstrual period
2. Inspect the size and characteristics of the neonate (thin or transparent skin, few skin folds or lines on the soles of the

feel, small mammary gland, many veins visible on abdominal wall)

Low birth weight babies

1. Weight of newborn, size

REFERRAL CRITERIA

1. If the baby does not nurse

2. Ifthe weight is less than 4 pounds 8 ounces (2000 grams)

* Obviously if there are other signs of problems (for example, sepsis) the baby should be referred.

TREATMENT

Referral process

1. Nurse baby during trip to hospital

2. Maintain the baby's temperature (clothe the baby well including a cap and socks, maintaining as much contact as possible with the mother

3. Arrange that the mother's milk arrives at the hospita, if possible. NO ES LOGICO

4. Refer to the hospital with complete documents.

IF REFERRAL IS NOT ACCEPTED

1. Give maternal breastmilk

   - Give nothing except breastmilk (no water, tea, oil, food, nor liquid of any other type)

   - Nurse baby or give breastmilk via a dropper at least every 2 hours.

   - If the baby cannot nurse, manually express milk from the breasts and give it to the baby with a dropper

If the baby does not nurse enough, he or she may become hypoglycemic (the baby trembles and has a weak cry). Therefore, you must insist that the baby receives maternal milk constantly.

2. Maintain the baby's temperature (clothe the baby well including a cap and socks. Skin to skin contact with the mother as much as possible. Mother and baby should sleep together using hot water bottles covered with cloth and placed by the baby's side). This avoids hypothermia (when the baby's tempeature is less than 37 degrees C).

3. Instruct the family regarding signs of infections and respiratory problems, including who to go at whatever hour should these symptoms develop.

4. Explain to the family that if the baby does not nurse that it is urgent that they go to the hospital.

IMPORTANT CONSIDERATIONS

Three major complications in premature babies and those with low birth weight:

1. Sepsis (see Management of sepsis)

2. Respiratory difficulties (for premature babies)

3. No hay 3

Education of the family is very important.

If they **do not** receive adequate treatment, the majority of these babies **will die.**

PROTOCOL FOR MANAGEMENT: SEPSIS IN THE NEWBORN

WHAT IT IS (DEFINITION)

It is a serious infection of the newborn's entire body that may begin as an upper respiratory tract infection, omphalities, dermatitis, etc., or without any visible or apparent source of infection.

HOW IT PRESENTS: SIGNS AND SYMPTOMS

1. Does not nurse or nurse less (very important sign)
2. Hypothermia (baby feels cold) or hyperthermia (baby has fever, feels hot)
3. Listlessness
4. Changes in the color of the skin (blue, pale)
5. Irritability (baby cries a lot, appears agitated)
6. Stops breathing for periods of time, respiratory difficulty, grunting, panting (like a dog), rapid respiration.

WHAT TO ASK THE MOTHER/RELATIVE OF THE NEWBORN

1. About feedings

   Is the baby nursing well? If not, when did she/he stop nursing well? Has it been one day, a few hours, a few days? Does the baby's mouth feel hot or cold when she/he is nursing? Does the mother think that the baby is nursing well?

2. Has the baby been crying a lot? Does the cry sound different? Is the cry weak?

3. Has the baby been limp, said? For how long?

4. Have you noticed that the baby has had irregular and/or rapid respirations, or has been grunting with respirations?

WHAT TO EVALUATE IN THE NEWBORN

1. Temperature
2. Sucking
3. Cry
4. Activity
5. Respirations

REFERRAL CRITERIA

If the baby has any of the signs or symptoms, refer him/her. Do not assume that a fever in a newborn is not important, or that a baby who does not nurse or appears sad or listless will get better. These babies can die in one day if they do not receive adequate treatment. You must refer them.

TREATMENT

If referral is accepted:

1. Explain everything to the family (the urgency of the situation and how quickly the baby can die)
2. Nurse as much as possible during the trip to the hospital
3. Keep the baby clothedvand covered during the trip to the hospital (clothe the baby well, including a cap and socks, and with as much contact with the mother's body as possible)
4. Give an initial dose of antibioticsin the health centr or post of:
   75 mg/kg IM Ampicillin plus 2.5 mg/kg IM Gentamycin (give in external border of the thigh, not in the gluteals)
5. Refer to the hospitalwith a referral note

IF REFERRAL IS NOT ACCEPTED

1. Explain everything to the family (the urgency of the situation and how quickly the baby can die)

2. Nurse as much as possible

3. Keep the baby well clothed (maintain as much body heat as possible)

4. Initiate antibiotic injections (in the external border of the thigh, not in the gluteals) in the health center or post of: 75 mg/kg IM each dose Ampicillin plus 2.5 mg/kg IM Gentamycin every 12 hours for 10 days

IMPORTANT CONSIDERATIONS

Four of the most important high risk factors that can contribute to neonatal sepsis are:

1. Maternal fever infection

2. Foul smelling amniotic fluid

3. Prolonged rupture o fmembranes: > 24 hours prior to the birth of the baby

4. Prematurity/low birth weight

5. Prolonged labor

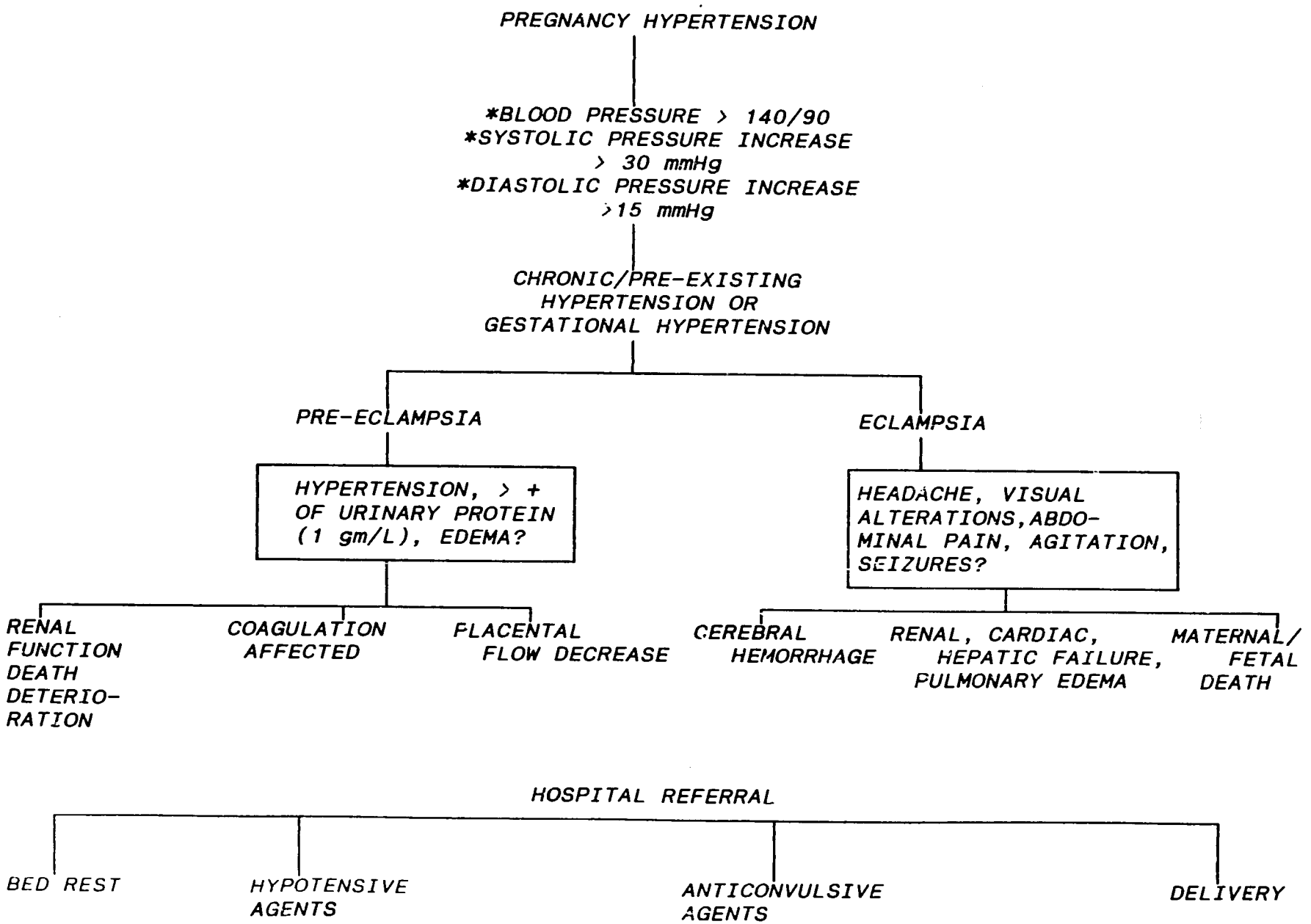
However, many babies develop sepsis without any of these risk factors.

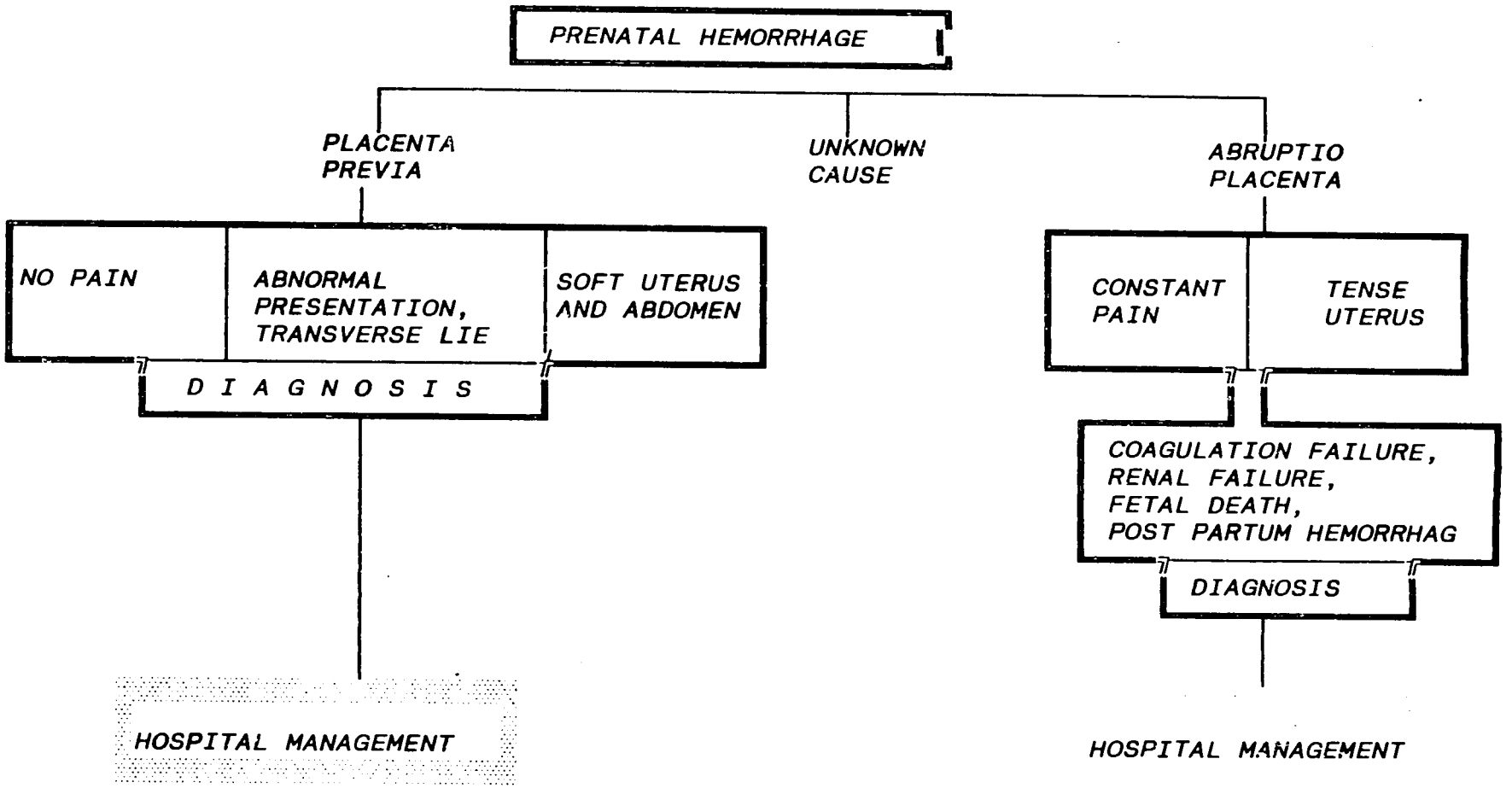
Remember that sepsis is the major cause of death in neonates and that they can die in 24-48 hours without adequate treatment. Do not wait, and do not treat a newborn with a fever as if she/he had only an upper respiratory tract infection.

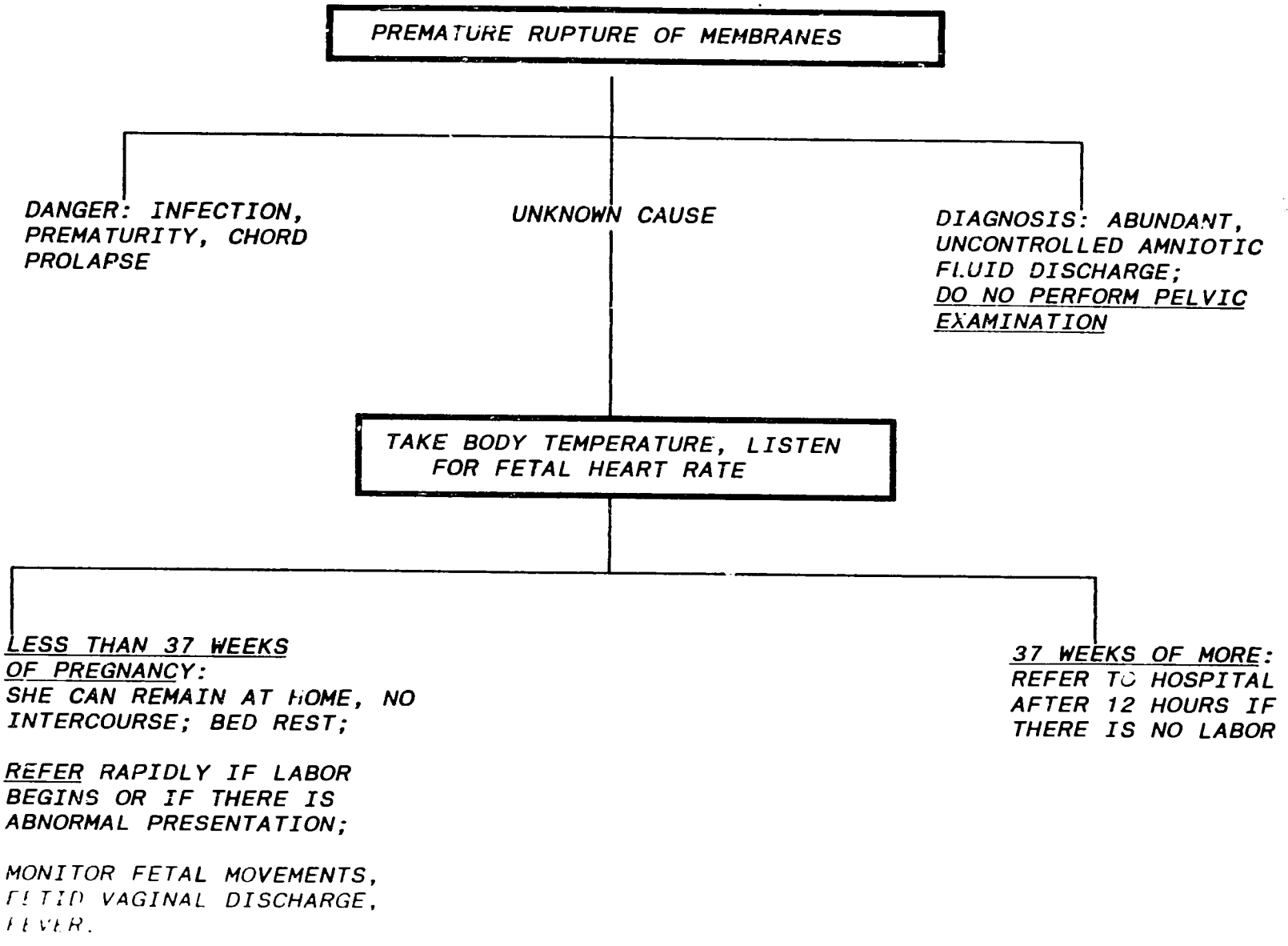
APPENDIX 12

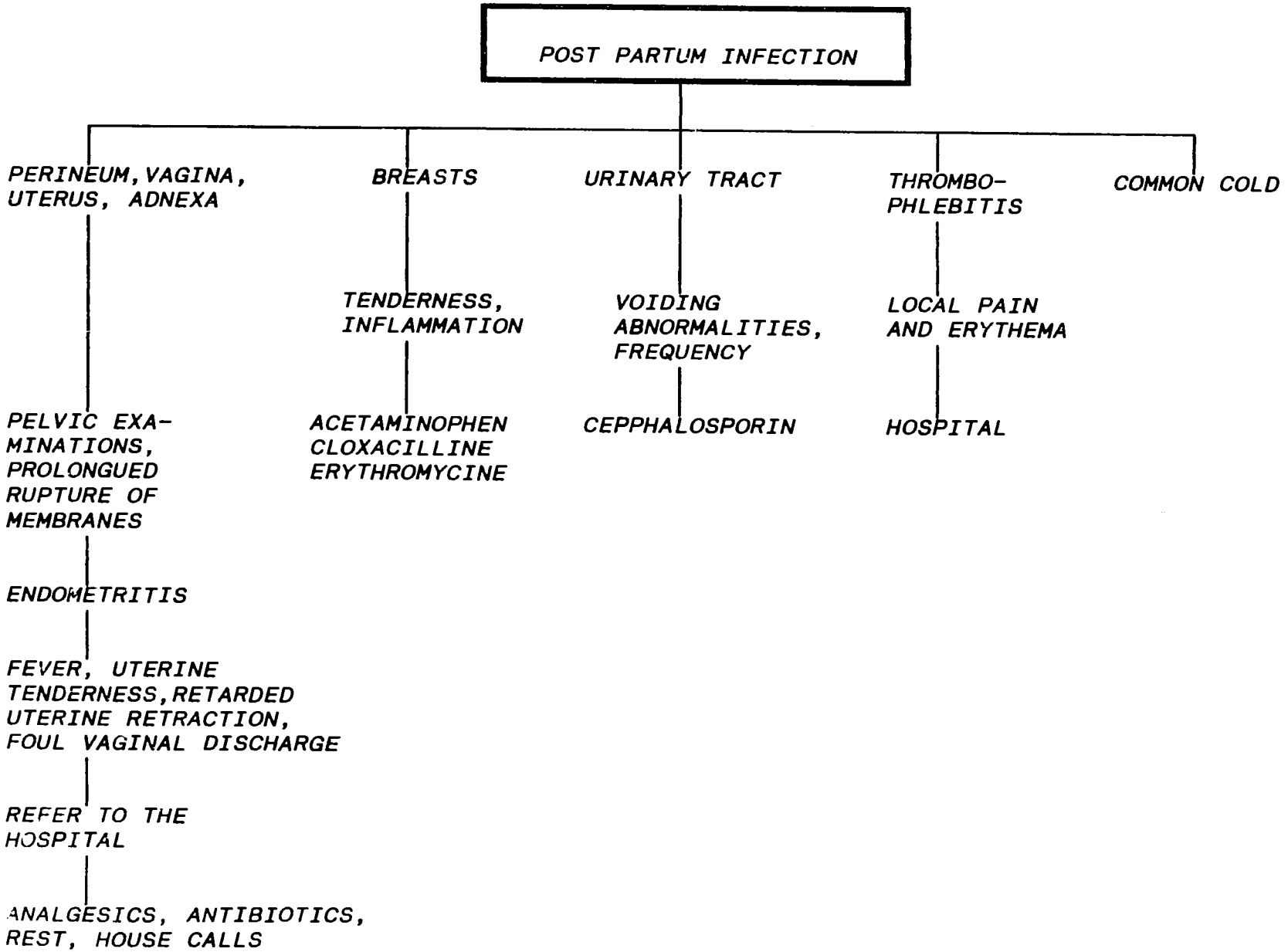
APPENDIX 14

ALGORITHMS USED DURING THE DISTRICT LEVEL TRAINING WORKSHOP


PREGNANCY HYPERTENSION
*BLOOD PRESSURE > 140/90
*SYSTOLIC PRESSURE INCREASE > 30 mmHg
*DIASTOLIC PRESSURE INCREASE >15 mmHg
CHRONIC/PRE-EXISTING HYPERTENSION OR GESTATIONAL HYPERTENSION
PRE-ECLAMPSIA
ECLAMPSIA
HYPERTENSION, > + OF URINARY PROTEIN (1 gm/L), EDEMA?
HEADACHE, VISUAL ALTERATIONS, ABDOMINAL PAIN, AGITATION, SEIZURES?
RENAL FUNCTION DEATH DETERIORATION
COAGULATION AFFECTED
PLACENTAL FLOW DECREASE
CEREBRAL HEMORRHAGE
RENAL, CARDIAC, HEPATIC FAILURE, PULMONARY EDEMA
MATERNAL/ FETAL DEATH
HOSPITAL REFERRAL
BED REST
HYPOTENSIVE AGENTS
ANTICONVULSIVE AGENTS
DELIVERY


PRENATAL HEMORRHAGE
PLACENTA PREVIA
UNKNOWN CAUSE
ABRUPTIO PLACENTA
NO PAIN
ABNORMAL PRESENTATION, TRANSVERSE LIE
SOFT UTERUS AND ABDOMEN
D I A G N O S I S
CONSTANT PAIN
TENSE UTERUS
COAGULATION FAILURE, RENAL FAILURE, FETAL DEATH, POST PARTUM HEMORRHAG
DIAGNOSIS
HOSPITAL MANAGEMENT
HOSPITAL MANAGEMENT


PREMATURE RUPTURE OF MEMBRANES
DANGER: INFECTION, PREMATURITY, CHORD PROLAPSE
UNKNOWN CAUSE
DIAGNOSIS: ABUNDANT, UNCONTROLLED AMNIOTIC FLUID DISCHARGE; DO NO PERFORM PELVIC EXAMINATION
TAKE BODY TEMPERATURE, LISTEN FOR FETAL HEART RATE
LESS THAN 37 WEEKS OF PREGNANCY: SHE CAN REMAIN AT HOME, NO INTERCOURSE; BED REST;
REFER RAPIDLY IF LABOR BEGINS OR IF THERE IS ABNORMAL PRESENTATION;
MONITOR FETAL MOVEMENTS, FETID VAGINAL DISCHARGE, FEVER.
37 WEEKS OF MORE: REFER TO HOSPITAL AFTER 12 HOURS IF THERE IS NO LABOR


POST PARTUM INFECTION
PERINEUM, VAGINA, UTERUS, ADNEXA
BREASTS
URINARY TRACT
THROMBO-PHLEBITIS
COMMON COLD
TENDERNESS, INFLAMMATION
VOIDING ABNORMALITIES, FREQUENCY
LOCAL PAIN AND ERYTHEMA
PELVIC EXAMINATIONS, PROLONGUED RUPTURE OF MEMBRANES
ACETAMINOPHEN CLOXACILLINE ERYTHROMYCINE
CEPPHALOSPORIN
HOSPITAL
ENDOMETRITIS
FEVER, UTERINE TENDERNESS, RETARDED UTERINE RETRACTION, FOUL VAGINAL DISCHARGE
REFER TO THE HOSPITAL
ANALGESICS, ANTIBIOTICS, REST, HOUSE CALLS

TRANSVER LIE WITH PROLAPSE
OF FETAL LIMB

MAKE ARRANGEMENTS FOR
REFERRAL TO HOSPITAL

DO NOT EXERT TRACTION ON
PROLAPSED LIMB(S)

MANAGEMENT OF SHOULDER DYSTOCIA

FIND ASSISTANCE

EMPTY PAT ENT'S BLADDER

PERFORM AN AMPLE EPISIOTOMY

MANIPULATIONS/MANEUVERS

1. SUPRAPUBIC PRESSURE AND TRACTION OF THE FETAL HEAD
2. FLEXING OF MATERNAL THIGHS AGAINST HER ABDOMEN AND FETAL HEAD TRACTION
3. PLACE TWO FINGERS OVER THE ANTERIOR PART OF THE POSTERIOR SHOULDER AND ROTATE THE FETAL TORSO 180 DEGREES

FETAL CORD PROLAPSE

SUSPECT THIS WHEN FETAL HEART RATE IS IRREGULAR, WITH SUDDEN EPISODES OF TACHICARDIA

DIAGNOSIS: · PALPATION OF PROLAPSED CORD

AVOID CORD COMPRESSION

- RAISE THE FETAL PRESENTING PART WITH YOUR FINGERS INTO THE MATERNAL ABDOMEN
- ELEVATE THE WOMAN'S PELVIS ON A HIGHER PLANE ABOVE HER SHOULDERS

FETAL MALPRESENTATION

- BREECH
- SHOULDERS
- FOREHEAD
- FACE

COMPLICATIONS OF FETAL MALPRESENTATION:

ASPHYXIA, TRAUMA, FETAL DEATH, MATERNAL DEATH, PRLONGUED LABOR (>18 HRS. IN NULLIPAROUS AND > 12 HRS. IN MULTIPAROUS WOMEN)

REFER CASE TO THE HOSPITAL BEFORE OR DURING LABOR

APPENDIX 13

HOSPITAL GENERAL DE OCCIDENTE SAN JUAN DE DIOS
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
COURSE: UPDATE ON HIGH RISK PREGNANCY
RAUL NAJARRO PEREZ

COURSE SCHEDULE

1. JUSTIFICATION AND DESCRIPTION

An update on the detection and management of high risk pregnancies is needed by the medical personnel of the Department of Obstetrics and Gynecology of the General Hospital of the West to respond via scientific and technical standards to the problems that these pregnancies pose.

The course is by nature theoretical-practical.

It will encourage a critical attitude, maintaining that the understanding of principles is more valuable than the accummulation of information or the acquisition of transitory techniques or skills. The course will be given each Tuesday of January and February, 1991.

The predominant methodology is interactive:

2. GENERAL OBJECTIVES

Upon completing the course:

2.1 Participants will present written scandards for the detection and management of the 10 principal causes of perinatal and maternal morbidity-mortality.

2.2 Participants will utilize a scientifical base for the detection and management of the clinical problems of the pregnancy at risk.

LEARNING OBJECTIVES

At the end of the course the participants will, via research in books, specialized journals and lecture material, accurately present written standards for the detection and management of high risk pregnancies in their own words.

SUGGESTED ACTIVITIES

- Dynamic oral exposition (explanations, presentations)
- Directed study
- Learning via examples (case studies)
- Symposium

EVIDENCE OF LEARNING

- Preparation of standards

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- Resolution of cases

PLAN OF DIDACTIC UNIT

Hospital General de Occidente. San Juan de Dios
Department of Obstetrics and Gynecology
Course: Update in High Risk Obstetrics
Subject: Management of Maternal Disorders and of the Pregnancy

OBJECTIVES	CONTENTS	ACTIVITIES	FACILITATOR	EVALUATION	RESOURCES
UPON COMPLETING THE UNIT, PARTICIPANTS WILL: 1. ACCURATELY COMMUNICATE WITH THEIR OWN WRITTEN WORDS THE MANAGEMENT OF MATERNAL DISORDERS AND OF THE PREGNANCY	I. MANAGEMENT OF MATERNAL DISORDERSAND OF THE PREGNANCY			1.PREPARATION OF STANDARDS	HUMAN MEDICAL PARTICIPANTS INVESTIGATORS FROM INCAP CONSULTANT
	1.1 PREMATURE LABOR WITH INTACT MEMBRANES	SYMPOSIUM	DR. FUENTES DR. DIAZ DR.GUEME DR. NAJARRO		PHYSICAL CLASSROOM CAFETERIA
	1.2 PREMATURE LABOR WITH RUPTURED MEMBRANES	DYNAMIC ORAL EXPOSITION	DR. ARRIAZA DR. NAJARRO		DIDACTIC EXPOSITORY AND INTERACTIVE TECHNIQUES OVERHEAD PROJECTOR SLIDE VIEWER SCREEN BLACKBOARD ERASER
	1.3 RUPTURE OF MEMBRANES WITHOUT LABOR	SYMPOSIUM	DR. ALVARADO DR. NAJARRO		
	1.4 PRE-ECLAMPSIA ECLAMPSIA	DYNAMIC ORAL EXPOSITION	DR. YAX DR. NAJARRO		

PLAN OF DIDACTIC UNIT

Hospital General de Occidente. San Juan de Dios
Department of Obstetrics and Gynecology
Course: Obstetrics and gynecology
Subject: Management of infectious in obstetrics

OBJECTIVES	CONTENTS	ACTIVITIES	FACILITATOR	EVALUATION	RESOURCES
UPON COMPLETING THE UNIT, PARTICIPANTS WILL:					
1. ACCURATELY COMMUNICATE WITH THEIR OWN WRITTEN WORDS THE MANAGEMENT OF INFECTIONS IN OBSTETRICS	1. MANAGEMENT OF INFECTIONS IN OBSTETRICS 1. SEPTIC ABORTION 1.2 SEPTIC SHOCK	DYNAMIC ORAL EXPOSITION SYMPOSIUM	DR.DIAZ DR.NAJARRO DR. QUEME DR.ALVARADO DR. YAX DR. NAJARRO	1. PREPARATION OF STANDARDS	HUMAN MEDICAL PARTICIPANT INVESTIGATORS FROM INCAP CONSULTANT PHYSICAL CLASSROOM CAFETERIA DIDACTIC EXPOSITORY AND INTERACTIVE TECHNIQUES OVERHEAD PROJECTOR SLIDE VIEWER SCREEN BLACKBOARD ERASER

PLAN OF DIDACTIC UNIT

Hospital General de Occidente, San Juan de Dios
Department of Obstetrics and Gynecology
Course: Update in High Risk Obstetrics
Subject: Antepartum and intrapartum management of the high risk pregnancy

OBJECTIVES	CONTENTS	ACTIVITIES	FACILITATOR	EVALUATION	RESOURCES
				PREPARATION OF NORMS	HUMAN
UPON COMPLETING THE UNIT, PARTICIPANTS WILL	1. ANTEPARTUM AND INTRA PARTUM MANAGEMENT OF THE HIGH RISK PREGNANCY	DYNAMIC ORAL EXPOSITION			MEDICAL PARTICIPANTS INVESTIGATORS FROM INCAP CONSULTANT
1. ACCURATELY COMMUNICATE WITH THEIR OWN WRITTEN WORDS THE ANTEPARTUM AND INTRAPARTUM DETECTION AND MANAGEMENT OF THE HIGH RISK PREGNANCY		CASE STUDIES			
	1.1 FOCUS OF RISK (APPROACH TO RISK)		DR. NAJARRO		PHYSICAL CLASSROOM CAFETERIA
	1.2 MATERNAL MORTALITY		DR. NAJARRO		
	1.3 CARE OF LABOR (CAUTIONS DURING LABOR)		DR. ALVARADO DR.NAJARRO		DIDACTIC EXPOSITORY AND INTERACTIVE TECHNIQUES OVERHEAD PROJECTOR SLIDE VIEWER SCREEN BLACKBOARD ERASER
	1.4 CAESARIAN SECTION		DR. YAX DR. NAJARRO		