ABORTIONS: CAUSES AND MANAGEMENT

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INTRODUCTION

- Abortion is the expulsion of the conceptus before 28 completed weeks of gestation, or a fetus weighing less than 500g.
- WHO and FIGO state less than 20-22 weeks.
- It could be induced or spontaneous.
- Three consecutive abortions would be termed; habitual abortion.

INTRODUCTION 2

- The frequency of spontaneous abortions is 12 to 15%.
- In our milieu, Nasah et al estimated at 10 to 20%.
- The frequency of habitual abortion is about 0.4 to 0.8%.
- Habitual abortion affects 2 to 5% of childless couples.

INTRODUCTION 3

- 75% of spontaneous abortions occur before the 16th week of gestation and 62% before 12 weeks.
- The incidence of subclinical abortions is estimated at 8%.

INTRODUCTION 4

- A few risk factors have been elucidated:
  - The risk increases with age (OR=2.3 after the age of 30).
  - Past history: risk after one abortion is 8%, 40% after 3 abortions and 60% after 4 abortions.
  - Ethnic origin and psychological factors.

INTRODUCTION 5

- Parity, history of voluntary induced abortion, medically assisted conception, contraceptive method, tobacco consumption do not seem to play any significant role in spontaneous abortions (J Lansac).

CAUSES

- **Chromosomal causes** (genetic) are most frequent, about 70% within the first 6 weeks, 50% before 10 weeks, 5% after 12 weeks.
- Could be: -errors during gametogenesis, non disjunction in paternal or maternal meiosis, resulting in monosomy (15%), trisomy (54%) or a double trisomy (3%).

CAUSES 2

- Errors during fertilization by digyny (fusion of male pronucleus with two female pronuclei) or by diandry (fusion of female pronucleus with two male pronuclei) resulting into triploïdy (19% of cases),
- Error of segmentation during 1st zygotic cell division, resulting in tetraploidy (4% of cases) or in mosaicism (1% of cases).

CAUSES 3

- These quantitative (number) abnormalities of chromosome represent 96% of the genetic causes.
- Maternal age and the aging of the gametes favor these abnormalities.
- Errors could be due to radiation, or due to translocation in the parents (4%) leading to habitual abortions.

CAUSES 4

- Each type of genetic abnormality would cause abortion at a given age of pregnancy: 1 week for trisomy 17 and autosomic monosomy, 3 weeks for trisomy 16 and tetraploidy, 6 weeks for trisomy 22, 5 weeks for triploidy, 6 weeks for X monosomy.
- Studies on placenta and caryotyping will often show such findings.

CAUSES 5

- Other ovum abnormalities can be responsible for abortions such as: multiple pregnancies, abnormal placental insertion, hydramnios, single umbilical artery etc.

- **Infections** are the second cause of abortions, representing about 15% of the cases.

CAUSES 6

- Several germs infect the egg and the endometrium, causing single or repeated spontaneous abortions.
- Some of these germs are: listeria, toxoplasma, rickettsia, mycoplasma, viral infections (rubella, herpes, CMV, HbAv), nonspecific infections (colibacilli), local infections (cervicitis, endometritis) and malaria especially in our milieu.

CAUSES 7

- Infections should be investigated if abortion occurs in a febrile context. Leke et al found that 35% of abortion cases were not protected against toxo (negative serology).
- *Common viruses like the mumps virus, influenzae, varicella and herpes zoster have no proven risk.*

CAUSES 8

- **Mechanical causes** :
  - Related to the ovum: multiple pregnancies, hydramnios, leading to uterine overdistension, contractions, cervical dilatation and membrane rupture.
  - Uterus (12 % of cases): hypoplasia and hypotrophy, leiomyomas, synechiae or congenital malformations.

CAUSES 9

- Up to 60% of uterine septae will cause spontaneous abortions (Singha 2003 EJ OG).
- Cervical incompetence, acquired (D/C, deliveries, conization, synechiae operations etc.) or congenital, causes 30% of 2nd trimester abortions.

CAUSES 10

- **Metabolic and vascular causes**
- Diabetes: risk doubles if poorly controlled.
- HTN increases the risk.
- Tobacco consumption.
- Chronic renal diseases.
- Disseminated lupus erythematosis.

CAUSES 11

- **Immunologic causes: HLA system with rejection of paternal antigens**
- Autoimmune abnormalities (circulating lupic anticoagulants).
- **Endocrine causes: luteal insufficiency associated with abnormal ovulation with polycystic ovaries, hyperprolactinemia, hyperthyroidism, poorly controlled diabetes.**

UNKNOWN CAUSES

- In **15-20 %** of cases of spontaneous abortions, the cause is not known.
- The incidence is 0.5 to 2 % of all pregnancies (Fomulu et al. 1990).
- Nasah et al. (1982) found an incidence of 33.8 % in the high risk clinic.

TREATABLE CASES

- The most frequent indication of cerclage is prophylaxis, around the 15th week of gestation; Mac Donald (1963) and Shirodkar (1955).
- Proven success rates and evident based.
- Drakeley AJ 2003, Cochrane review (6 trials, 2175 women): less delivery at <33 weeks, but more tocolytics, mild pyrexia and hospital admission.

PREVENTION

- *Progesterone*: R M Oates Cochrane, 14 trials, 1988 women; progestogens and placebo with similar outcome.
- *Bedrest*: A Aleman (2005) 2 studies of 84 women, placebo and bedrest similar, hospital and home bedrest similar, HCG reduced miscarriage more than bedrest.

PREVENTION 2

- Vitamin supplementation: Rumbold A, 17 trials of 35812 women and 37353 pregnancies, 2 cluster randomized trials of 20758 women and 22299 pregnancies;
  - less preeclampsia,
  - more multiple pregnancies but
  - no difference in rate of miscarriage.

PREVENTION 3

- *APL Ab or lupus anticoagulant*: M Empson 13 studies, 849 participants, compared placebo, prednisone Ig, LMWH, aspirin alone and *aspirin + unfractionated heparin;* latter reduced pregnancy loss by 54%.
- *Immunotherapy*: TF Porter, paternal leukocyte immunization, 3rd party, trophoblast mb, IV Ig in recurrent unexplained miscarriages. *No benefits*.

TREATMENT OPTIONS

- *Incomplete abortions*: F Forna (2001) Cochrane review showed vacuum aspiration to be safer and more effective than sharp curettage.
- *Medical treatment of early fetal death*: JP Neilson (2005) 24 studies 1888 women; misoprostol vaginal route more effective than oral, *sublingual similar to vaginal*.

CONCLUSION

- First trimester abortions mostly due to genetic causes, are very difficult and even impossible to treat.
- In the second trimester, cervical incompetence being the main cause, prophylactic cerclage has been proven to be effective.
- Post abortum care needed.

THANK YOU

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