Pregnancy-Related Death of African Women: I. Background and Risk Factors

There is an increasing call in many quarters for the economically developed to encourage the increased use of abortion in third-world countries, including Africa. This is being advocated on the grounds that childbirth is dangerous to women and that the legalization of abortion will decrease the risk of death from pregnancy-related causes. Available data indicates that death of women is excessive, particularly in third world countries, but that the various causes of these deaths are most often due to poor maternal health facilities in these regions, coupled with poor medical care. The very same reasons which place women at risk for childbirth also affect abortion. There is also substantial evidence that induced abortion cannot be performed in these third world countries without a high incidence of morbidity and mortality because of various inherent risks which are discussed below. This article is divided into two sections. Section I provides some background considerations. Section II discusses various risks of serious complications or death for African women who become pregnant. A subsequent article will summarize various hospital and community-based studies on the incidence and causes of pregnancy-related deaths.

I. Background

African political independence in the 1960s brought about rapid changes in traditional social and economic structures, enhanced rural-urban migration, and to some extent, brought about expansion of health facilities as well as educational opportunities. Changes have tended to increase the average age at which females marry which has occurred almost simultaneously with the decline in average age at menarche. Thus, there is an increasing proportion of sexually active adolescents who may have premarital pregnancies, childbirth and sexually transmitted diseases.1 Young, unmarried women and older highly parous women, especially those with a record of poor child survival, are particularly at risk for pregnancy-related death.2 African women reportedly have the highest incidence of infectious infertility (49%) of any women in the world, compared to only 10.6% of women in developed nations which is related to sexually transmitted disease and pregnancy complications.3 It is also believed that this African infertility pattern results from cumulative insults occurring both before and after the first pregnancy. Cultural practices of extramarital sexual relationships, encouraged in part by customary postpartum sexual abstinence, as well as unhygienic midwifery procedures have been hypothesized to be important contributors to African infectious infertility.4

Pregnant women in Africa also have a much higher likelihood of anemia (63%) compared to pregnant women in developed nations (14%).5 Anemia increases the likelihood of infectious diseases, blood loss and
risk of death from pregnancy-related causes. Adding to the risk of women is a shortage of properly staffed and equipped health facilities, including hospitals, particularly for women in rural areas. Thus, when pregnancy-related complications develop, there may be a lack of resources available to respond.

There are additional difficulties in evaluating the effects of induced abortion. In most African countries induced abortion is restricted or prohibited outright. In countries such as Zambia and Burundi, induced abortion is allowed on social grounds but is reportedly not generally available. Another recent exception is South Africa which legalized abortion in 1996. Governmental or other national statistics are not available on its incidence and complications. Similarly, national statistics on the impact of induced abortion on maternal or pregnancy-related death in Africa are lacking.

In many developing countries, including Africa, death registration systems are incomplete, and in some cases, nonexistent. Frequently the information on the cause of death reported on a death certificate is inaccurate or may be not stated and the underlying cause of death is likely to be missing. Thus, there is a need to rely upon multiple sources including hospitals, doctors, burial certificates, church records, newspapers, police and coroner reports, traditional birth attendants, community health workers, and various village informants.

The life expectancy of African women is 52 years compared to 49 for African males. In Africa, childbirth is much esteemed and there is a high fertility rate. In contrast to many developed nations many childbirths occur at home and in rural areas of Africa as many as 80-90% of births will occur outside of a hospital.

The World Health Organization (WHO) has introduced the concept of unsafe abortion. This is defined as the termination of pregnancy performed or treated by untrained or unskilled persons. According to this definition both spontaneous abortions as well as induced abortions are lumped together and it places exclusive emphasis on abortion technique as the reason for unsafe abortion. The WHO claims (citing U.S. data) that a woman living in a developing country faces a risk of death of up to 250 times greater compared to those living in technologically advanced countries with skilled abortionists and hygienic conditions.

Anemia is the most common complication of pregnancy. The CDC definition of anemia in pregnancy adopted in 1989, and modified from the World Health Organization definition is as follows: Hemoglobin (Hgb) less than 11.0 g/dl in the first and third trimesters, and less than 10.5 g/dl in the second trimester, or a hematocrit less than 32%.

Anemia is the most common complication of pregnancy. The causes of anemia are multiple. The major ones are a deficiency of iron, folate, and Vitamin B12,
genetic disorders, such as sickle-cell anemia, various infections including malaria, and increased losses of blood caused inter alia by certain infections. A recent study of pregnant women in Tanzania found that 86% had iron deficiency anemia and one-third of anemic women had malaria. Another study of pregnant women in Costal Kenya found that 75.6% of the women were anemic and 9.8% were severely anemic. Malaria infection, iron deficiency, and hookworm infection were major causes of anemia. A recent Nigerian study found that first childbirth increased the risk of anemia 5.6 fold, malaria parasitemia increased the risk of anemia 4.1 fold, low social class increased the risk 3.2 fold and pregnancy interval of less than 2 years increased the risk 4.8 fold. However, no association with grand multiparity (7 or more births) was found.

Although it has been little studied generally, pre-existing conditions such as anemia increase the risk of induced abortion or the length of the hospital stay following the abortion. In a large United States study in the early 1970s, only 249 out of 72,988 (0.3%) women were identified who had anemia which was reported as a complication of abortion. Despite the apparently relatively low incidence of anemia among U.S. women who may undergo abortion, it is recognized as a potential problem. For example, the Standards for Abortion Care for the National Abortion Federation state, Laboratory procedures to determine anemia (hematocrit or hemoglobin) and Rh factor in every case are mandatory... Clinics must have written protocols which address eligibility for abortion by patients presenting with... anemia and many U.S. abortion facilities will not perform an abortion on a woman who is anemic.

In contrast to the United States, anemia is a much more common complication of induced abortion in developing nations. In one study of maternal deaths in Costal Kenya, anemia was identified as a cause of death in 99% of the cases. In another Kenya study of women admitted to 8 hospitals in various regions during 1988-89, 17.8% were reported to have anemia as a complication of illegally induced abortion. In a study of 803 black or coloured women in South Africa in 1994 who presented at 9 regional hospitals with incomplete abortion, 5.5% had a hemoglobin level (g/dl) of 6.5 or less, 9.5% were between 6.6-8.5, 32.4% were between 8.6-10.5, and 52.0% were greater than 10.5. Thus, nearly, half of the women were anemic.

In a study of maternal deaths of women in Guinea during 1989-90, 58% of the women who died were anemic. Women who were anemic were found to have twice the risk of death compared to those who were not anemic. A community study of maternal death in rural Tanzania in 1993 found that there were symptoms of anaemia in 45.3% of the deaths regardless of cause. Other researchers have reported that an anemic woman is five times more likely to die of pregnancy-related causes compared to a woman who is not anemic. The World Health Organization has estimated that 20% of maternal deaths are directly due to anemia with additional deaths caused indirectly by anemia, especially obstetric hemorrhage.

B. Pre-existing Infections

Some of the factors affecting the prevalence of female reproductive tract infections in developing countries are characteristic of all societies in transition. Urbanization, usually dominated by relocation of young, single people, often results in the loosening of traditional restraints on sexual activity. Significantly lower incidences of various sexually transmitted diseases have been found in African women who are married, have a later age at first sexual activity and first pregnancy, and have no more than one lifetime sexual partner.

The prevalence of lower tract infection in most developing countries is sufficiently high that transcervical procedures, such as IUD insertion and abortion, and reproductive events such as childbirth are likely to result in upper tract infection with regularity. In a study at a hospital in Harare, Zimbabwe in 1986-87, the microbiological flora in the genital tract of 95 women who developed clinical signs of infection within 48 hours of vaginal delivery, caesarean section delivery or abortion, were compared to women...
who delivered at the same time but who developed no signs of infection. Chlamydial antigen was detected in women with sepsis following vaginal delivery (16%) or abortion (22%) compared to only 6% of uninfected controls. Clue cells, indicating G. vaginalis, were found in 20% of women with sepsis following vaginal delivery compared to 23% of postabortion women and only 7% of uninfected controls. The authors believed there was a likely role of chlamydia trachomatis in the development of early sepsis. Some strains showed increased resistance to penicillin and some antibiotic treatments failed to eradicate the infection.28 In a recent community based study in 1992-1993 of reproductive tract infections of women in rural Nigeria found that 43.8% of adolescents age 17-19 had reproductive infections, primarily candidosis, chlamydia and trichomoniasis. And a study of teenagers in Addis Ababa, Ethiopia who were receiving gynecological services found that 93% had one or more sexually transmitted diseases. And in a study of 110 women with spontaneous abortion at Mbarara hospital in Uganda in 1993, 48.6% had a history of a sexually transmitted disease; 43% had at least one prior abortion, and 32% were HIV positive. Only 6% returned for their test results although almost all initially said they wanted to know their HIV test results.11

C. Lack of Antenatal Care

There is evidence that lack of care during pregnancy is also a contributing factor to maternal deaths. In a study of 203 pregnant women in Tanzania, it was found that no advice whatsoever was given to 60% of the women who attended by clinic members and staff although half of the women had identified risk factors. In addition, many women could have benefitted from more education. Nearly half of the women did not know of any abnormal signs during pregnancy and only 8% knew that sexually transmitted diseases could be the cause of vaginal discharge during pregnancy. Only 5% came during the first trimester of gestation.32

A study of maternal deaths in a district of Kenya during 1981-88 found that only 28% of the mothers who died had attended an antenatal clinic anywhere, and among those who did 52% were already in the third trimester. Among the women who did attend an anenatal clinic anywhere, only 32.6% had any blood or urine test and only 34.8% had any height or girth recording, while 95.7% did have a blood pressure recording.11

A recent study by the World Health Organization on routine antenatal care concluded that various risk factors for adverse maternal outcomes can be identified by history-taking. WHO concluded that because anemia in pregnancy is common, especially in developing countries, iron and folate should be provided for every pregnant woman, in areas of high anemia prevalence, based upon circumstantial evidence. They concluded that hemoglobin (Hb) testing is more important around 30 weeks gestation than early in pregnancy. It is unclear whether early detection of pre-eclampsia will reduce the incidence of eclampsia but the WHO concluded that early detection may lead to better outcome. WHO also recommended screening and treatment for certain infections.
including syphilis because it is inexpensive and cost-effective. Obstructed labor can be anticipated in multiparas based upon obstetric history and hospital delivery should be secured. Height of nulliparas should be recorded where hospital birth is not routine and there is a discriminatory level for hospital delivery decided locally. WHO found that the external version of breech lie does reduce the incidence of breech births and cesarean delivery. Many of those needed services have not been provided to African women in the past.

D. Hospital Exposure to STD /Blood Shortages

Some women with pregnancy complications necessitating a blood transfusion in African hospitals may refuse blood transfusions because of fear of HIV infection. Also, many women who need blood may not receive it because of shortages. This will increase the likelihood of pregnancy-related or maternal deaths. In a study of maternal deaths at a hospital in Thika Subdistrict in Kenya during 1981-88, the unavailability of blood was cited as a factor in maternal deaths in 22.6% of the deaths. In a study of maternal deaths at five hospitals in Kampala hospital in Uganda during 1980-1986, lack of blood for transfusions was cited as a common patient management factor which contributed to maternal deaths. Other studies have found that blood shortages were implicated in 35% of maternal deaths in Tanzania, 39% in Malawi, and 36% in Vietnam. Women entering hospitals for pregnancy complications may also be exposed to Hepatitis B or Hepatitis C by medical personnel. In a survey of 75 doctors and dentists at the University College Hospital in Ibadan, Nigeria in 1995, it was found that in 28% of physicians and 44% of surgeons hepatitis B surface antigen or antibody to hepatitis B core antigen was detected. Eighty percent were not vaccinated. In addition, 11% of the doctors and dentists had anti-Hepatitis C Virus antibodies indicating Hepatitis C Virus infection. Because of the risk of transmission of HIV or hepatitis B or other pathogens carried by blood, the World Health Organization and the Centers for Disease Control (USA) have instituted various preventive measures such as wearing gloves when handling blood. However a recent study of 766 health workers at a teaching hospital in Ile-Ife Nigeria in 1992-93 found that 27% of the nursing staff, 52% of the laboratory staff, 20% of medical doctors and 39% of health workers overall were non-compliant. In 21% of the cases the reason given was that gloves were not available.

E. Resistance to Antibiotics

In parts of Africa, Latin America, Asia, and the Indian subcontinent, many organisms, including gonococci, have developed high-level antibiotic resistance probably because of the unrestricted use of over-the-counter antibiotics. Indiscriminate use of antibiotics may cause antibiotics to be ineffective against post induced abortion infections. The effectiveness of antibiotics in the treatment of postabortion complications was also questioned in a recent Nigerian study. A randomized controlled trial of 140 women with non-septic incomplete abortions at a Zimbabwe hospital in 1985 which used tetracycline, found no significant differences between the treatment and control groups. There was evidence of poor patient compliance in the treatment group. There is evidence that the cost of medications is frequently very high. This may affect patient compliance with prescribed treatment.

There is evidence that the ineffectiveness of many antibiotics is widespread. In a recent report from Ethiopia staphylococcus aureus and e. coli strains were found to be resistant to a wide variety of antibiotics. There is substantial evidence that tetracycline, which is an important and widely used antibiotic, is increasingly ineffective. A recent study in Gambia found that gonococcal isolates were resistant to tetracycline and a recent French study has found that certain strains of chlamydia trachomatis were resistant to tetracycline. Tetracycline resistant bacteria have been isolated from humans, animals, food and the environment which indicates that major environmental changes may need to occur.

Women with abortion-related sepsis require large doses of antibiotics, which may not be available when
A recent South African study found that 15% of women with serious infections from incomplete abortions had not been given any antibiotics at all, even though antibiotics were apparently available. Other studies have listed that women continue to die from septic abortion despite the utilization of a broad spectrum of antibiotics.

Antibiotics may also not be available to childbearing women. One study among obstetric patients at Ilorin University Teaching Hospital in Nigeria found that some patients were without any antibiotics until the third day after a cesarean section because their relatives were not able to buy the drugs immediately and they were not in stock at the hospital pharmacy. Sepsis caused 82% of the maternal deaths in this study.

F. Ectopic Pregnancy

Ectopic pregnancy, although potentially life-threatening and pregnancy-related appears to have been little considered in African medical literature. This may be because of a lack of diagnostic equipment, such as a laparoscope. However, it appears to be a significant risk factor for pregnancy-related deaths among African women. In a study of 212 women with complications of induced abortion at a teaching hospital in Accra, Ghana in 1993-94, 5.7% of the women had an ectopic pregnancy as diagnosed by laparotomy (incision into the loin) which had been mistaken for intrauterine pregnancies. The authors believed that laparotomy was essential if any reduction in mortality was to be achieved. However, the authors stated that a laparoscope is not available in many hospitals in Ghana as in other developing nations. In the United States ectopic pregnancies can be diagnosed by a combination of hCG testing along with vaginal probe ultrasound either at an abortion facility or at a hospital emergency room, along with laparoscopy in order to reduce maternal mortality from a ruptured ectopic pregnancy.

G. Malaria

Pregnant women are at a higher risk of infection and disease from malaria compared to non pregnant women. Malaria is also a major cause of anaemia in women. A recent Nigerian study found that malaria parasitemia results in a four-fold increase of anaemia in pregnancy. In areas where malaria is endemic, malaria has been associated with low birth weights as well as maternal death and fetal loss. Malaria is very prevalent in certain parts of Africa. In a 1995 study of 200 women in early second trimester of pregnancy in a medical clinic in Dar Es Salaam, Tanzania, it was found that 51.5% of the women had taken antimalarial drugs for treatment for acute malaria, while another 23.5% had taken antimalarial drugs for prophylaxis. Sixty-nine percent of the women were exposed to chloroquine. However, malaria is increasingly resistant to chloroquine and many countries lack policies for the effective delivery of effective antimalarial drugs to pregnant women.

H. Treatment Delays for Complications

Abortionist Warren Hern in his book Abortion Practice (1990) states that the preferred location for an outpatient abortion facility is within 5 minutes of a full service hospital. At the very least, a first trimester facility should be within 30 minutes of a hospital emergency room and a second trimester facility should be within 20 minutes of a full-service hospital. The American College of Obstetricians and Gynecologists requires that free standing facilities who provide abortions should provide for prompt emergency treatment or hospitalization and have an established mechanism for transferring patients who require emergency treatment to a nearby hospital.

However, in African nations, the time between the recognition of the pregnancy-related complication which requires hospitalization and the time of admission to a hospital, is most likely to be considerably greater than 20-30 minutes. In addition, the hospital facilities and staff may not be able to provide the necessary services required. For example, in a study of 1077 women admitted to 8 hospitals in various locations in Kenya during 1988-89 with illegally induced abortions, only 37.8% reported to the hospital within 24 hours after noticing initial symptoms. In another study of maternal deaths of women in Kenya...
in 1981-88, contributory factors included unavailable transport or impassable roads in 12.2% of the cases, and wrong booking into the hospital (causing further delay) in 7.3% of the deaths.  

Many women who need emergency care because of a life-threatening pregnancy-related condition also arrive at the hospital in very poor condition, sometimes without any prior notice. Unless the hospital is able to respond to the emergency situation with adequate staff and resources, the woman is much more likely to die. For example, in a study of 81 maternal deaths at a South African hospital, only 7 (8.6%) were booked in advance, with the balance (91.4%) unbooked. Factors that could have prevented these deaths were present in 80% of the cases. Among booked patients the maternal death rate was 0.32 per 1000 deliveries; the maternal death rate was 11.13 per 1000 deliveries among unbooked patients.  

In a Zaire study, 90% of the women who died were admitted in a critical condition.  

---Thomas W. Strahan, Editor

References


