

Maternal Mortality In A Contemporary Social Background

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The rate of maternal mortality is surprisingly high even nowadays, varying from country to country, based on their level of development, from 25 to 700 maternal deaths to 100,000 live births per year. And still, the index of maternal mortality is still not common; statistics usually only refer to infant mortality rates.

Maternal mortality occurs at a unique, particular moment of an individual's life, at the moment of childbirth. Yet, this moment is strongly connected to the individual's life within the society. It is the expression of a demographic behavior at a given time, of a personal will to have children, which is itself an answer to the conditions of the social environment.

Maternal mortality depends on the one hand on genetic factors, on a general state of health, or on the numerous problems that might occur during pregnancy, which may lead to complications or even the mother's death. On the other hand, it also depends on a factor "in the shadow", but just as important, determined by the economical and social conditions of existence – poverty, malnutrition, insufficient medical care, as well as the underprivileged situation of women, the discrimination that women, and especially pregnant women and mothers are even today subject to in the whole world, though to a different degree.

For the most part the risk factors of pregnancy, and thus also of **maternal mortality can be avoided** by medical means of tracking down and preventing diseases and possible complications, and by a careful and continuous pre-natal care. Yet also by economical and social methods, less at hand, but which are capable to come up with a solution in principle, a clear long time decrease of maternal mortality.

For the time being maternal mortality is one of the most important problems of public health.

In the course of time and especially in the last century, society in its entirety has evolved very much. Medical knowledge as well as medical technology has improved, has continuously evolved, enriching and diversifying its tools, treatment possibilities and assets. Many aspects of health which had no solution even in the near past can be treated now,

finding their amelioration or even complete cure. Similarly many causes of illness, unknown or having no cure in the past can now be identified, prevented, and avoided.

In this context maternal mortality, with its multiple implications and reasons, represents a complex problem, difficult to solve, but essential to reduce.

For a longer period between 1788-1990 the literature speaks about the “decline” or “crisis of mortality”. The expression, unusual at a first glance, refers in fact to a fundamental reality of public health all over the world, the drastic, spectacular decrease of mortality in general of diverse etiology. This decline of mortality was even more evident after 1880, when infant mortality began to decrease emphatically, then after 1940, due to the invention and use of antibiotics, and again after 1970, due to the general increase of living standards, especially in the West.¹ Infant mortality has decreased very much, but maternal mortality, despite a certain decrease, has continued to be high.

This fact brought a radical improvement of the population’s general state of health and a spectacular growth of the average life expectancy.

Industrialization, urbanization, technical progress all lead to a higher income, the improvement of the population’s health conditions, and therefore to the decrease of mortality.²

Still, this economic and social progress is far from being uniform all over the world. There are enormous differences between developed and less developed countries, urban and rural areas, different regions within the same country, as much for Africa as, for example, for England! Thus in Zambia (Africa), where maternal mortality is the highest in the world, an average of 1238 deaths for 100,000 live births shows regional variations between 764 and 1549 deaths; in Pakistan (Asia) the average is 433 deaths, varying between 281 and 673; in England (Europe) the average is 11.3, but in Oxford it was 4.38, and in Thames 18.64³. For Romania, in 1997, the average was 0.41/1000 live births, with variations between 0.16 – Botoșani county, 0.48 - Cluj

¹ Evidence taken from abstracts of **articles from medical journals** from all over the world, from between 1995-1998, as the results returned for the keyword “maternal mortality”, **Medline** database; articles 1-148.

² Pescaru, Al. *Populație și economie* (Population and economy), Bucharest: Ed. Științifică, 1969, 56.

³ Willocks, J. *Essential of Obstetrics and Gynecology*, New York: Churchill Livingstone Medical Text, 1982, 109.

county, 0.86 – Dâmbovița county.¹ On a global scale: for Canada the rate of maternal mortality is 2.6/100,000 live births, for Hong Kong 5.1, for the US 5.7, for England 7.2, for the Netherlands 10; on the other hand for Mexico it is 181.7, for Turkey 200, for India 230, for Indonesia 757.5 (the highest in South-East Asia is Guinea-Bissau with 914), etc.

The average maternal mortality rate is of approximately 13 maternal deaths for 100,000 live births; in less developed countries it is of 1050 deaths, that is 1 death in 100 live births.²

Even if developed countries of the Western type are at a high level of economic development, have a high average income per inhabitant, and a health system well thought out for decades, less developed countries have to deal with several problems: the insufficiency of resources, lack of qualified personnel, lack of hospitals, of access roads, but also the prevalence of traditional methods and the lack of elementary knowledge of hygiene and care, especially during pregnancy. There are problems of “substandard” care in several African countries, yet there are also in France, where the high rate of maternal mortality can be explained exactly by the deficiencies of the sanitary system.

On the other hand developing countries have to face a fast growth of the population, often exceeding the degree of economic development, a high fertility, a high number of children as compared to the number of fertile women, a high rate of young population under the age of 15.

The more or less adequate medical framework is not the only condition for the population’s state of health at a given time, and thus also that of maternal mortality, as social-economic conditions, and the social status of women at the given moment is equally important. More plainly, I mean the discriminations that women are subject to in a different degree and under different forms, but all over the world and in all times.

As the *WHO Report on the Health of the World* from 1995 shows, women’s health depends as much on the insufficiency of resources, on the lack of infrastructure, and on difficult access roads as on women’s inferior social-economic condition, their limited level of decision and instruction, on the incapability to correctly use maternity services. “The premature death of mothers is associated with an inferior

¹ *Anuar de statistică sanitară* (An annual of sanitary statistics), Ministerul Sănătății (The Ministry of Health), Centrul de Calcul, Statistică Sanitară și Documentație Medicală, 1997, 59.

² *Rapport sur la Santé dans la Monde*, WHO, Geneva, 1998, 3.

human condition, as the consequence of a country's social, cultural, and economic features."¹ Or, further on: "The discrimination of women manifests itself all throughout their existence" through the lack of instruction, their economic dependence and discrimination, their limited access to education, professional formation and job opportunities, as well as the lack of access to methods of regulating fertility, as women are more exposed to violence (domestic and rape), and have extra problems about their genetic health, anxiety, or sexual malfunctions.²

In order to promote women's health, a program was initiated to prevent AIDS and other sexually transmitted diseases, sexual mutilation of women, to fight against abortion, as well as for a "maternity without risks" in order to reduce maternal and neonatal mortality.³ This program, which was initially launched in 10 countries, aims at professional and community mobilization, the assistance of the mother and child at childbirth, obstetric care accessible for the population, increasing women's access to decision taking, and increasing their level of responsibility.

The unanimous opinion is that, even if infant mortality has considerably decreased, the maternal mortality rate is still unacceptably high (including the USA!) In other words, "reproduction is still often defective, with a high percent of dependence and deficiencies, which seriously aggravate the society's tasks and rebound upon the demographic balance of the collectivity".⁴

In this context one can speak about a certain "reproduction health", defined as a "physically, psychologically, and socially fully satisfactory condition, with regard to all the aspects connected to the reproductive system, with its functions and problems"⁵. Reproduction health, which also includes sexual health implies among others "the right to take decisions about reproduction without discrimination, constraint, and violence, to reach the highest standard of reproductive and sexual health".⁶

¹ *Rapport sur la Santé dans la Monde*, OMS, Geneva, 1995, 37.

² *ibid.*, 151.

³ *ibid.*, 56.

⁴ Vintî, I. *Adolescentul de azi, familia de mâine* (Today's adolescent, tomorrow's family), Cluj: Dacia, 1973, 7.

⁵ *Conferința internațională pentru populație și dezvoltare* (An international conference for the population and development), UNO, Cairo, 1994; New York, 1995, chapter VII.

⁶ *ibid.*, 13.

In Romania “reproduction health continues to be much under the European level, and in the absence of progress in the field, reproduction health has a profoundly negative effect over the general health, welfare, and development of the population”¹ and this fact leads to one of the highest rates of maternal mortality in Europe, and to the necessity of adequate measures in order to reduce it.

Demographically, reproduction manifests itself through fertility, natality, and demographic behavior. This reflects social-economic conditions in society at a given time, combining biological, psychological, and social factors. “The biological phenomenon of birth also has at its basis a psychological element, which presents itself in the desire to have children, or in the acceptance of an accidental pregnancy”². Yet the acceptance or desire for pregnancy occurs in certain social conditions, being favored naturally in periods of an economic and social boom. “The demographic behavior modes of individuals and families change in answer to the conditions of the social environment”³ since it is “a mosaic of direct and indirect influences”⁴.

The traditional model and that of the developing countries today is one based on a high level of fertility and mortality, where the high rate of fertility, that is, of births must compensate the high rate of mortality, including that of maternal death (!) in order to secure the survival of the population. At present, one may witness a change in the population’s demographic behavior: the reducing of fertility, an advanced model of family planning, based on the control of births and the elimination or significant decrease of unwanted pregnancy, and the ever more emphatic passage to a society with both a reduced fertility and mortality.⁵ Thus maternal mortality will be drastically diminished, to an incredible extent as compared to the past. See for example the case of China, where maternal mortality was reduced in just a few years from 356.3 to 43.67 maternal deaths/100,000 live births, or even Romania with a definite decrease from 169 maternal deaths in 1989 to 41/100,000 live births in 1997⁶.

¹ *Sănătatea femeii, sănătatea națiunii* (Women’s health, nation’s health), The Policy Project in Romania, 1997, 2.

² Pescaru, Al. *Populație...*, 23.

³ *ibid.*, 39.

⁴ *ibid.*, 29.

⁵ *ibid.*, 62.

⁶ *Anuar de statistică sanitară*, op. cit., 59.

As far as we are concerned, maternal mortality is a complex index, connected to “morti-natality”, wherein “the evolution of mortality largely depends on medical actions, while fertility variations largely reflect economic and cultural conditions”¹. Thus we have to deal with a complexity of medical and socio-economic factors, which cannot be treated separately, but as a multidisciplinary unit.

As has already been shown, the emphasis, both in medical statistics and practice, was laid on “infant mortality” and not on “maternal mortality”. Therefore the “maternal mortality” index is not commonly known, and is often missing from the statistics².

On the other hand the maternal mortality index is not very clearly defined and delimited in theory, and there is considerable imprecision and variation in this field. In fact we are speaking about the “maternal mortality rate”, which is calculated by correlating the number of maternal deaths to the number of births multiplied by 1000³. Yet this apparently easy way of calculation requires a series of clarifications.

- a. The number of births means the live births registered during a year. Yet, there is an additional number of premature births or even stillborns (a fetus which died between the 24th -40th week of pregnancy, or, in other words, the birth of a child which gives no life signs (like breathing or heartbeat) beginning with the 24th week of gestation; death preceding this period is classified as abortion)⁴. Maternal mortality is usually correlated to 100,000 live births. But it can also be correlated to 100,000 births (total) (Mexico, Saudi Arabia), or to 10,000 registered women of fertile age (Sweden), or to 1000 live births (India, Romania⁵).
- b. There are uncertainties about maternal deaths as well. The WHO defines maternal mortality rate as follows: it “corresponds to a number of maternal deaths following pregnancy or (!)

¹ Pescaru, *Populație...*, 75.

² cf. Molnar, Anamaria, “Evoluția unor indicatori de sănătatea reproducției în jud. Cluj, în perioada 1988-1996” (The evolution of reproduction health indexes in Cluj county in the period between 1988-1996), In *Sesiunea științifică anuală a Institutului de Sănătate Publică Cluj* (The Yearly Session of the Cluj Public Health Institute), 1998, 25.

³ Miller, A.W. F., Hanretty, K.P., *Obstetrics Illustrated*, New York: Churchill Livingstone Medical Text, 1997, 397.

⁴ *ibid.*, 396-397.

⁵ *Anuar de statistică sanitară*, XXIII.; and Zarcovic, G., Enăchescu, D. *Probleme privind politicile de sănătate în țările Europei centrale și de răsărit*, Bucharest: Infomedica, 1998, 54.

childbearing (up to a max. of 42 days following the end of pregnancy) that occurred during a year for 100,000 live births registered in that year”¹.

Arriving to a certain consent, *The International Federation of Obstetrics and Gynecology* (FIGO) recommends that only the deaths before the 42nd day from birth or abortion be classified as maternal mortality². It is only a recommendation, and therefore in some cases – England, for example – all maternal deaths that occurred up to one year after the end of pregnancy are considered as such.³

“Real” maternal mortality, which is directly connected to pregnancy is differentiated from the “associated” one, which occurs for other reasons during pregnancy or puerperium.⁴

Whichever way, the classification and registration of maternal mortality is defective.

Similarly, a general problem of wrong classification occurs in the case of early pregnancy, in the first months of pregnancy, of which both the mother and the medical staff may be unaware.

Maternal deaths can also be considered those having a circumstantial reason, like car-crash, homicide, HIV/AIDS, malaria, war, suicide, drug overdose, in vitro fertilization, snake bites, as all these cases may involve pregnant women.

On the other hand, all over the world medical statistics has to deal with the problem that maternal mortality is under-reported, a fact which clearly appears in the UNICEF declaration: “maternal mortality was substantially underestimated in the past”, for example in Taiwan – 58.38% under-reported; Brazil – 60 % underestimated and under-reported due to the system based on death certificates, and the transfer of patients to unmonitored hospitals; Argentina – 50% of maternal deaths are not reported (!); in France it is underestimated due to AIDS, carelessness in registration, bad organization of obstetrical care, or other unexplained reasons. In the Netherlands, the heart of Europe, the amount of under-reporting was estimated to 26%, especially due to wrong classification (indirect deaths, during labor, after birth, during the puerperium, due to cerebrovascular problems). On account of this it is required that the condition of pregnancy be registered on the death certificate.

¹ *Rapport sur la Santé dans la Monde*, 1995, 99.

² Willocks, *Essential of Obstetrics...*, 109.

³ idem

⁴ idem

Another problem also connected to the statistical registration of maternal mortality occurs in many developing countries where either there is no systematic, official state registration, or many births take place not in hospitals, but traditionally at home. For these cases complicated estimation systems were developed, like the “sisterhood method” interview of a randomized population, or using data from the “Demographic Surveillance System” introduced in Matlab, Bangladesh, in 1966, which collected information about the conditions, events, and symptoms preceding death, and evaluating it as a cause of maternal death. Another system used in India is the estimation of maternal mortality by the model of regression “Simple Registration System”.

Maternal mortality represents a risk factor, which continues to be significant in a varying proportion over the whole world, but especially for a category of population – women.

According to certain data, one woman dies every minute due to problems directly or indirectly connected to pregnancy, that is, 585,000 women in the whole world die yearly, out of which 99% in developing countries¹. The risk is of 1:16 in Africa, 1:65 in Asia, and 1:1400 in Europe. Or, a woman’s chance to survive childbirth is 8999 in 9000 in the United States.²

It may be stated again that for each dying woman there are at least thirty who have pregnancy problems³. Besides pregnancy problems, there are all kinds of complications, direct or indirect, connected to mother and child, which is in the end an indissoluble unit. So much so that maternal mortality is just the top of the iceberg, the basis of which is given by economic and social factors connected to underdevelopment, poverty, ignorance, traditions and malnutrition. It is not merely by chance that almost all cases of maternal mortality – 99% -- occur in developing countries.

There has been much research done on the causes of maternal mortality. The reasons change in time, some which were especially important in the past can be prevented, treated and dislocated in the present.

Socio-economic conditions, though not clearly visible at a first glance, represent a basic condition which fundamentally influences a woman’s entire life, and even more so that of a pregnant woman and a future new-born. This is a fact that we have to keep in mind, because if

¹ *Rapport sur la santé dans la Monde*, 1998, 106.

² Green, L., Ottosan J., *Community Health*, St. Louis: Mosby, 1994, 125.

³ *Maternal Health Around the World*, 1997, 1.

we can help it, the rate of maternal mortality could decrease categorically in the long term.

Malnutrition as a basic factor of maternal mortality causes a general weakness in the female organism, which has to carry the burden of her own life, and also the one of the future baby. The saying that a healthy mother will give birth to a healthy child is not accidental. So, nutrition has to be adequate, and must contain a correct and many sided diet plan – “the quantity of calories matters less than the quality of food”¹. Its absence may lead either to the aggravation of existing diseases or to the apparition of new ones. Proteins, calcium, and iron – because of the possibility of iron-deficiency anemia (Hb under 110g/l) – are the most important factors in a pregnant woman’s diet. Endemic malnutrition, especially in Africa but also in some countries and regions in Asia and South America, can also be felt in Eastern Europe (17%) and in the republics of Central Asia (40-50%)².

Obviously the pregnant woman’s reduced weight (but obesity also) may be an additional risk factor in labor, as much for the mother as for the child, which may be born prematurely or with a retarded physical or psychic development (malformations, underweight, psychic debility or abnormality).

The woman’s disadvantaged situation, her discrimination, inferior social status also create problems during pregnancy. The lack of social support, hard physical work, limited instruction level, limited possibilities of decision in family planning, or unwanted or accidental pregnancy are all harmful for the pregnant woman’s health.

Another group of reasons that I have already spoken about is the deficiency of the sanitary system. Since in many developing countries it is in a primary stage of organization and development, with a defective human and technical equipment, it leads to low quality, “substandard” pre-natal and maternal, inclusively post-natal care, which is even today an important cause of maternal mortality (50-80%) in these countries³, in the conditions when “the post-partum period is the key to maternal mortality”. How can any attention be given to a pregnant woman if in some cases, like in Pakistan, for example, the nearest hospital is 40 miles away?

¹ Green, Ottosan, *Community Health*, 129.

² *Family Planning and Reproductive Health in CCEE/NIS*, UNFPA, 1994, 6.

³ Anthony J., Kaye P., *Notes for the DRCOG*, New York: Churchill Livingstone, 1995, 93.

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² *Family Planning and Reproductive Health in CCEE/NIS*, UNFPA, 1994, 6.

³ Anthony J., Kaye P., *Notes for the DRCOG*, New York: Churchill Livingstone, 1995, 93.

A primary risk factor of maternal mortality is of course that of young, adolescent, first-bearer mothers, whose number can be quite high in developing countries – for instance, 37.8% in Mozambique. The importance of this category is also proved by the high number of births for women between 15 and 19 years of age: 17 million in 1997, which will not drop under 16 million by 2025¹. The methodology is not unitary in this case either. Sometimes the focus group is “15 to 19 years”, in other cases “17 years and under”, or there are two categories: “12-15 years and 16-18 years”, where the risk of complications is very high – 5% for the former group and 1% for the latter.

In case of adolescent mothers factors such as risky sexual behavior or unwanted pregnancy appear more frequently, with their respective consequences: low weight at birth, premature birth, birth traumatism, prolonged pregnancy, anemia, toxemia, caesarean section, retardation of womb growing, or congenital malformation to a much higher degree than in case of adult mothers.

There are also several social problems that adolescent mothers encounter, unlike adult mothers. For most part they are not married, they have to suffer pressure from adults, they are forced to abandon their child and their own education, their financial resources are limited, and they experience isolation, stress, insecure abortion, and inadequate information on contraceptive methods².

Another risk factor is the age over 35 years, especially in case of first-bearers, when the musculature is no more elastic enough, and inevitably all kinds of health problems appear.

Another undesirable experience, many times traumatic and having negative effects over a future pregnancy is abortion, that is “the death of the product of gestation before the 24th week of pregnancy”³. Another definition is “the termination of pregnancy for different reasons before the fetus would be capable of extra-uterine life”⁴. Abortion may be of many kinds: a) spontaneous, because of natural reasons, or induced, on request; b) complete or incomplete, if the placenta is not yet expelled; c) secure, made in hygienically and medically adequate conditions, or septic, with infections; d) legal or illegal, although in most countries it is allowed in different forms and with certain conditions.

¹ *Rapport sur la Santé dans la Monde*, 1998, 85.

² *Post-abortion Family Planning: A Practical Guide for Programme Managers*, WHO, Geneva, 1997, 36.

³ Miller – Hanretty, *Obstetrics Illustrated*, 171.

⁴ *Post-abortion Family Planning*, 2.

Many times the cause of abortion is unknown, but it often lies in the abnormal development of the ovum, chronic or acute infectious diseases, RH incompatibility, deficiency of progesterone, syphilis, nephritis, alcoholism, congenital abnormalities of the womb, which compromise the correct implantation of the ovum in the womb, causes which can sometimes be treated. In other cases abortion cannot be avoided.¹

In all cases abortion is physically, emotionally, and psychically traumatic for the mother because of the medical implications, but also because of the possible consequences: depression, complications in future pregnancies, or the impossibility of a future pregnancy.

In Romania mortality because of abortion represents more than half of all maternal deaths, as abortion in Romania presents outstandingly high numbers. 1 in 5 empirically provoked abortions were followed by complications, and even 1:10 of legal abortions show a risk of complications.

According to the *Report on the Health of the World*, 1995, in 1990 there were an average of 140 abortions in dangerous conditions for women between 15 and 49 for 1000 live births, with due differences among various countries and regions.²

Multiparity is again a risk for pregnant women. Although it is said³ that the third child has the best chances, a woman's physical and physiological possibilities are limited, and so after the fifth or sixth child labor complications are much increased. A survey completed in Malawi in 1991 shows that multiparity leads to 5.5% perinatal deaths, 1.2% post-perinatal deaths, and 11.5% maternal deaths.

Multiple pregnancy (twins, triplets, etc.) the incidence of which has considerably grown lately also presents a higher risk. Theoretically, the possibility of multiple pregnancy is given by "Heinlin's law": if the incidence of doublets is 80, then that of triplets is 80^2 (6,400), that of quadruplets 80^3 (512,000). In England, for example, the incidence of triplets was 1:9,000 in 1982, and it dramatically increased to 1:2,700 in 1993.⁴ Multiple birth depends on the race, age, the number of conceived children. It is inherited and it is more probable after the age of 35-40. For

¹ Miller – Hanretty, *Obstetrics Illustrated*, 174.

² *Rapport sur la Santé dans la Monde*, 1995, 36.

³ Vinți, *Adolescentul de azi...*, 9.

⁴ Miller – Hanretty, *Obstetrics Illustrated*, 194.

a first birth the incidence of multiple pregnancy is 1:74, but for a seventh birth it is much higher, 1:45¹.

Multiple pregnancy means an additional effort for the female organism, which may lead to anemia, placenta praevia, premature labor, reduced growth of the fetus, intra-uterine death, post-partum hemorrhage, pre-eclampsia and eclampsia, difficult labor and birth, discrepancy in growth between the two fetuses.²

Another general problem of higher risk is ectopic gestation, outside the womb, with an incidence of approximately 1:3,000 pregnancies.³ This is localized in 95% of cases in the Fallopian tubes. These however have a muscular system inadequate for pregnancy, and this type of gestation rarely takes to normal childbirth, due to ruptures, or severe hemorrhage. The causes of ectopic gestation may be several: congenital malformations of the tubes – obstructed, tube or pelvis inflammation, sterilization, some contraceptive methods (coil), or the migration of the ovum from one place to another⁴. Pregnancy outside the womb can usually be solved by operation and blood transfusion for avoiding hemorrhage and shock.

A special case is abdominal pregnancy when the ovum is implanted in the peritoneum and which also ends with operation and abortion.

Chromosomal defections/abnormalities also form an important group of causes of maternal mortality, of which a woman cannot be responsible, which appear accidentally, but which can also be induced by pollution, by subjecting the organism to radiations, drugs, smoking, alcohol, conserved food, or not properly controlled medicine. “They can be detected during the 14th – 20th week of pregnancy, when therapeutic abortion is medically possible and legally allowed in many states.”⁵ Naturally, only with the condition of adequate pre-natal care and control, with the necessary technical equipment and personnel, which is something very difficult to achieve in most underdeveloped countries.

Genetically, pregnancy problems can be classified as follows⁶:
a) chromosomal anomaly associated diseases; b) hereditary sexual diseases; c) complex hereditary diseases; d) malformations during the

¹ Vinți, *Adolescentul de azi...*, 273.

² Miller – Hanretty, *Obstetrics Illustrated*, 194-199.

³ Vinți, *Adolescentul de azi...*, 265.

⁴ Miller – Hanretty, *Obstetrics Illustrated*, 162.

⁵ Green – Ottosan, *Community Health*, 130.

⁶ Vinți, *Adolescentul de azi*, 70-72.

fetus' development; e) hereditary mental deficiencies or illnesses (schizophrenia, psychoses), commoner with twins; f) other constitutional or degenerative ailments; g) allergies: asthma, duodenal ulcer.

The problem is complex and serious. On the one hand, the lack of natural selection should be replaced by a carefully controlled genetic hygiene¹. There are such possibilities: a standard test – screening – of the alpha-fetoprotein maternal serum (MSAFP) in order to detect the defections of the neural tube in the fetus, but which is only informative in the 15th-18th weeks of pregnancy.² Another genetic analysis is the amniocentesis, an analysis of the amniotic fluid in the mother's womb, which may yield information about genetic abnormalities. Still, not all of them can be detected.

On the other hand, genetic implications are huge, as 36% of spontaneous abortions are caused by chromosomal defections (more than 100,000 yearly in the US). A minimum of 40% of infant mortality is caused by genetic factors, and it affects 5% of all live births!³

The "classic triad" of the direct medical reasons of maternal mortality is: hemorrhage, infections, and eclampsia.

Incontestably, hemorrhage of different types is the most important cause of maternal mortality, on the top of all statistics, being responsible for around 25% of all maternal deaths.

The reasons of hemorrhage are diverse. There are general reasons, determined by endocrine or infectious disease (chickenpox, German measles), tuberculosis, blood diseases (coagulation problems, anemia), nervous or psychic problems. Yet there are also local reasons: vulvo-vaginal (inflammations, traumatism, etc.), uterine (erosion of the cervix, abortion), tumors (polyp, fibroma, cancer), genital inflammations, or diet deficiencies (e.g. vitamin deficiency).

Internal hemorrhage, caused by the rupture of the ovary, uterus, or tube is different from external hemorrhage, outside bleeding apart from normal menstruation⁴. We can also differentiate ante-partum hemorrhage, following the 24th week of pregnancy, due to placenta praevia (reduced implantation of the placenta into the womb), or complete rupture of the placenta, from post-partum hemorrhage which occurs during labor or birth. This can also have several reasons: the rupture of the placenta, long/difficult labor, excessive dilatation of the womb, multiparity, or

¹ Vinți, *ibid.*, 75.

² Green – Ottosan, *Community Health*, 130.

³ *idem.*

⁴ Miller – Hanretty, *Obstetrics Illustrated*, 185.

general anesthesia. Moreover, it can be due to trauma of the uterus, cervix, or vagina, or the retention of pieces of placenta.

Consequences may be extremely serious: anemia, general hemorrhage, collapse of blood circulation, or death, all of which can sometimes be prevented first of all by blood transfusion, or treatment, but which can also end with maternal death. It is worth remembering however, that 71% of hemorrhage cases in maternal mortality can be avoided.¹

From hemorrhage to pre-eclampsia and eclampsia there is only a step. Arterial hypertension in women is due to life circumstances, or to renal, circulation, or cardio-vascular problems. Eclampsia may be the result of serious hemorrhage, but also of previous problems during pregnancy, or even preceding it. While pre-eclampsia is characterized by “signs without symptoms”², eclampsia is a more advanced stage, having clear symptoms. Heart problems are very frequent, arterial hypertension forming the main cause of morbidity and mortality on a world-wide basis, including pregnant women – 12-18% of maternal mortality³.

The third component of the “triad” is infections, approximately 15%⁴, and it is mainly due to a lack of hygiene, especially in developing countries, in case of births which do not take place in a hospital, but in dubious conditions, which favor lesions, infections, septicemia, local puerperal infections, propagated or generalized. There is a natural microbial flora in the genitalia, which grows together with the beginning of sexual life. Other causes which can generate infections are abortions, vaginal births, surgical procedures, births with ruptures, which may involve inflammations, secretions, lesions, abscesses.⁵ If these remain untreated, they may lead to severe complications during and after labor.

Other infections are due to sexually transmitted diseases – syphilis, gonorrhoea, HIV/AIDS, or fetotoxic infections of the exterior genitalia, the vagina or the uterus (toxoplasmosis, rubella, cytomegalovirus, herpes simplex, parvovirus, streptococcus B).⁶

¹ Willocks, *Essentials of Obstetrics...*, 110.

² Miller – Hanretty, *Obstetrics Illustrated*, 116.

³ *Maternal Health Around the World*, 1.; Anthony – Kaye, *Notes for the DRCOG*, 93.

⁴ Vinți, *Adolescentul de azi...*, 325.

⁵ Vinți, *ibid.*, 202.

⁶ Miller – Hanretty, *Obstetrics Illustrated*, 154.

The discovery and treatment in time of all the possible causes of these infections, especially in case of adequate prenatal care may prevent around ¼ of maternal mortality due to this cause.

Dystocia (slow birth) appears usually among the first five causes of maternal deaths. As always, there are again several causes. It may be caused by the fetus in the course of labor (its large size, over 4 kg, difference between the size of the fetus and the mother's pelvis, or an abnormal position at birth), or by the mother having uterine contraction disorders, modification of the size of the pelvis: twisted/deformed, which may lead to difficulty in labor and childbirth¹. In this case also supervised childbirth in hospital conditions by a qualified medical staff may result in the avoidance of complications and even of maternal mortality.

Another cause of maternal mortality, closely connected to dystocia, is the cesarean section, which is a necessary surgical intervention often called for in case a normal vaginal birth would cause problems.

In some cases cesarean section is imposed either by choice (in case of placenta praevia, reduced intra-uterine growth, obstetrical antecedents, mother's diabetes, or an inadequate presentation of the fetus, especially at premature birth), or in emergency cases (fetal stress, prolapse of the umbilical cord, pre-eclampsia, rupture of the placenta while the fetus is alive)².

In many cases cesarean section is an almost normal birth, an attractive, not traumatic solution which often saves the life of mother and new-born alike. However, cesarean section is often abusively called for, and this leads to an unjustified growth of this practice in the last couple of years. For example in the US in a short period between 1983-1992 the number of cesarean sections increased by an average of 12,5%. Yet this procedure may end with several serious complications: severe hemorrhage, anemia, infections, pulmonary embolism, which brings to the increase of maternal mortality with a dose of risk which cannot be neglected. A research conducted in the Netherlands shows that "cesarean is 7 times more risky than vaginal birth". Although under civilized conditions cesarean section is a relatively secure procedure, the risk is 0.04 in 1,000 vaginal births and 0.53 in 1,000 cesareans. In Africa, Zaire for example, the risk of maternal mortality in case of cesarean section is 13 times higher than in case of vaginal birth, 93% of the cases being emergencies!!! Therefore alternative methods are insistently advisable,

¹ Vinți, *Adolescentul de azi...*, 305.

² Miller – Hanretty, *Obstetrics Illustrated*, 314.

such as the active management of labor, vaginal extraction, symphysis section, or vaginal birth after cesarean section. Obviously, maternal and perinatal mortality is associated with cesarean section and a low rate of fertility: for example 5.6 in 1,000 cesareans in Indonesia.

I have described in short the main causes of maternal mortality. Yet, there are still many others, a fact which shows the complexity and risk of this essential moment in a woman's life, and also of the human species: epilepsy, diabetes, certain renal problems, acute pancreatitis, hepato-cellular carcinoma, pulmonary embolism, or of the amniotic fluid, cervical cancer or other types of cancer, etc.

A special cause is post-natal depression, "post-partum blues". Relatively common, occurring in over 50% of cases, it can last 4-5 days – moderate depression – or four weeks to six months in extreme cases of post-natal depression, when it may lead to suicidal tendencies or puerperal psychoses in 0.2% of mothers. This however can be treated by psychotherapy or sometimes psychiatrically.¹

The analysis – even though sketchy – of the main causes of maternal mortality and connected problems must necessarily lead us to the evaluation of measures or possibilities of reducing the maternal mortality rate. Such possibilities certainly do exist, **THE MAJORITY OF MATERNAL DEATHS CAN BE AVOIDED: 55% in case of hemorrhage, 75% of septicemia, 65% of eclampsia, 80% of dystocia, 75% of dangerous abortion, 20% in case of indirect causes!**² This is an extremely valuable situation from where we must commence: maternal mortality is by no means inevitable, it can and must be prevented, reduced to an ever lesser "acceptable" level, following economic and social progress and the development of medical science. Pregnancy and birth, as we have seen, are complex processes, which involve factors of a great diversity: social, economic, nutrition, genetic, or various diseases or traumatism. Maternal mortality can never be "zero", it will continue to exist to a certain extent, but avoidable causes must be avoided to the highest degree possible in the given context.

Any statement must be made cautiously as long as the possibilities or even the will to act varies greatly from one country to another. The barriers are just as much connected to objective factors, like financial costs, organization level of emergency services and hospitals and their human and material resources, as to subjective ones: sexual

¹ Miller – Hanretty, *Obstetrics Illustrated*, 348.

² *Rapport sur la Santé dans la Monde*, 1995, 36.

tradition and customs, personal faith, cultural factors, level of sexual and maternal instruction which only change in time.

The main issue is that of money, of necessary funding. The more a state is economically developed, the more it can afford an advanced, comprehensive, and preventive sanitary protection system, including maternal protection. Basically, the risk of maternal mortality can principally be avoided by prevention – a careful and generalized pre-natal care, the early detecting of possible problems and complications during pregnancy, selection and treatment of pregnant women at a higher risk. There is also the financial problem of laboratory equipment for pre-natal tests, for blood transfusion, emergency transport, etc.

Another problem is the continuous organization, reorganization and improvement of the national sanitary system, as much in underdeveloped countries as in the transitional countries of the post-communist bloc, and in Western-type developed countries.

Family planning is also a part of prevention, that is, the prevention of undesired, unintended pregnancy which usually leads to abortion, the planning of pregnancy and birth at the right time for the individual and family, the distancing of childbirth in case of multiparity: in fact an optimal sexual and reproductive health.

Finally, one must mention the importance of health education with regard to a future pregnancy, and even to a future paternity, beginning from school, especially for pregnant women ante- and post-partum, or in special cases like post-abortion family planning, or in case of oral contraception. Another necessary measure is psycho-sexual assistance within family planning offices, or health promoting county laboratories.