Mothers´ dilemma – conducting delivery on the limits of the foetus viability

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Abstract
Ethical questions concerning problems of conducting delivery of enormously immature foetuses are subjected to intensive discussion and call for a permanent and wide consideration with the participation of all specialists, who are involved in the problem. The discussions have persisted over tens of years and became intensive particularly at the moment of defining the foetus viability. In the present contribution, the author illustrates the discussion by two selected case reports exemplifying the practical impact of conducting deliveries of enormously immature foetuses on the physician and particularly on the family.

INTRODUCTION
The author points out a wide variety of problems associated with conducting the delivery of children with incredible low birth weight and based on the case reports presented below, he demonstrates a wide scale of problems from the point of view of the obstetrician and parents, particularly mother. The birth of a living child, regardless of its vitality, is classified as a delivery of the foetus having the birth weight of 500 g and above (Czech Republic. Law No. 372 dated November 6, 2011). The viability is understood as a capability of survival, growth and normal development of the foetus. In terms of the definition “to be born alive and to survive”, the limit currently ranges between weeks 22 and 23, the official limit in the Czech Republic being the achievement of the gestation age of 24+0. The period between weeks 22 and 25 of pregnancy is referred to as a “grey zone” with an unsure prognosis of the newborn mortality or morbidity (Czech Republic. Law No. 372 dated November 6, 2011, Zlatohlávková 2011).

Gross (2000) points out that the viability also depends on the family, which will take care of the child. Japanese authors define the viability limit between 24th and 28th weeks of pregnancy (Nishida & Sakuma 2009). Itabashi et al. (2009) mentions that in Japan, a proportion up to 50% of babies born in the 23rd week are able to survive. Pignotti and Donzelli (2008) report that in France, the palliative care is preferred in the 24th week of pregnancy, unless otherwise requested by the parents. The intensive care is introduced since the 25th week achievement. Hull et al. (2015) implemented an online study offering a survey of opinions concerning the definition of the foetus viability and description of the decision-making process and availability of the pregnancy termination beyond the foetus viability limit in Canada.
The survey was designed for an association of genetic consultants, for genetics from a further association and members of the Canadian Society for Foetomaternal Medicine. It was shown that in Canada, it is possible to terminate pregnancy beyond viability, the indication being severe disease of the foetus; 67% of subjects mentioned the 24th week of pregnancy as a viability limit; most of them tends to believe that the decision-making process is based on a multidisciplinary cooperation; most specialist would indicate the pregnancy termination beyond the foetus viability limit in severe and lethal defects, but not in moderate defects. There are also perinatal hospices as an alternative possibility. Differences in approaches between different parts of Canada are emphasized with taking into account individual attitudes towards each particular case. Dubelet et al. (2014) deals with special radiodiagnostic and sonographic examinations in the first trimester and suggests criteria of “nonviable” pregnancy in the first trimester.

Deliveries and newborns with ILBW (Incredible Low Birth Weight, less than 750 g) considerably affect decisions concerning the delivery conduction and influence the mental condition of the woman as well as father in the sense of stress, not only at the time after completing the delivery, but also as to the future of the child and family (Šimek 2015). First of all, the obstetrician in cooperation with the family and with appropriate specialists, must frequently make a decision within a short period of time, concerning particularly the method of the delivery. It is also to emphasize the fact that the conduction of the foetus delivery on the limits of the viability should be performed by an experienced obstetrician and requires not only his/her considerable professional capacity, but also psychological, social and ethical quality and experience. His/her decision is also considerably affected by the woman or by both parents as to their opinions and attitudes. The condition for managing this complex situation includes the intensive interdisciplinary cooperation, particularly between the obstetrician and neonatologist, the participation of a psychologist being also obviously necessary (Čepický 2011; Smith et al. 2012).

CASE REPORT 1

A patient aged 30 years was treated for a period of two years for primary sterility (ovarian factor, oligomenorrhoea). In her personal anamnesis, she experienced diagnostic laparoscopy with ovarian drilling and was a heterozygote carrier of the Leiden mutation. The treatment was performed in the Centre of Assisted Reproduction, where two embryos were transferred. Subsequent ultrasonic examination demonstrated intrauterine pregnancy with two foetal eggs. In the next control examination, in the 10th week of pregnancy, trigemini triamniati bichoriati were detected. Given a considerable hazard of the trifoetal pregnancy with a monochorial component, the patient was sent to a higher medical institution, where after an analysis of the situation, she was recommended to consider a reduction in the monochorial component and she agreed with this suggestion after several days. After the intervention, which was implemented at this institution, the patient was without problem in the 14th week of her pregnancy and the ultrasonic examination demonstrated one living foetus.

In the course of subsequent controls in the prenatal consulting office, the clinical course was without complications and ultrasonic examination imagined prosperous singleton pregnancy. From about 18th week, intermittent spotting was described, other findings being within normal range including cervicometry. In the 21st week of pregnancy, a rather strong haemorrhage occurred, for which the patient was hospitalized. Haemorrhage stopped during conservative therapy, weak spotting was persisting and oligohydramnion diagnosis was established. The genetic ultrasonic examination of the foetus did not demonstrate any congenital defect of the development. At the gestation age of 23+1, uterine activity was encountered with a demonstration of premature amniotic fluid leakage. After an analysis of the situation with the patient and with her husband, in the presence of a neonatologist, with respecting the request of the parents, the conservative attitude to the pregnancy was continued with an attempt to extend the pregnancy time as much as possible beyond the limits of the foetus viability. However, an elevation of infectious markers was very rapidly encountered and thus, under assumption of the foetus weight above 500 g and breech position of the foetus, and with respect to the request of the patient, the delivery was performed by Caesarean section. The newborn of male sex with a birth weight of 650 g and Apgar score 4/5/5 died after 24 hours at the Neonatal intensive-care unit of the Department of Neonatology. Six days later the patient was discharged from the hospital.

CASE REPORT 2

A patient aged 28 years was transferred to the Perinatal Center with a diagnosis of uterine cervical incompetence at a gestation age of 23+3. Ten months ago, she experienced spontaneous abortion after premature rupture of membranes in the 22nd week of pregnancy. Other anamnestic data were unimportant.

During standard treatment, regular contractions occurred, tocolysis was unsuccessful, and vaginal finding exerted a progress. After an analysis of the situation, the patient accepted possible Caesarean section only in the case of an indication for endangering her own health and refused it up to the completed week 25 based on indication for endangering the foetus. The parents did not request starting the resuscitation care in severely immature newborn. Spontaneous
delivery started at the gestation age of 23+6, where amniotic fluid spontaneously leaked on not palpable orifice and spontaneous version of the foetus from the original longitudinal head-first position to the breech position occurred. The delivered foetus of the male sex, weight of 670 g, with terminal heart action, died after several min. On the second day after the delivery, the patient was discharged from the hospital.

DISCUSSION

When speaking about a group of babies with extremely low birthweight (ELBW), newborns with a birth weight under 1000 g are considered. Deliveries of these newborns and subsequent short-term as well as long-term care involve a wide scale of problems. They concern the morbidity as well as mortality (Měchurová 2013; Romero et al. 2006). As already mentioned, the delivery regardless of the child vitality can be considered if the foetus weight is of 500 g and above. The incidence of about 0.2% of these deliveries is reported (ÚZIS ČR 2013). Due to the necessary complex interdisciplinary approach, they are usually performed in Perinatal centres. Till 24th to 25th week, general recommendations put emphasize on the individual attitude with extensive information of parents concerning the foetus prognosis in terms of the mortality as well as long-term morbidity.

The discipline obstetrics takes care of two individuals, i.e. mother and child. During this, the woman is a “person” – patient, the “foetus” is not a person de jure and thus, other people make decisions about its future. In the field of the philosophic attitude, there are two different concepts of the approach to the foetus. The ontological personalism is supported by an argument of the genome identity, thus considering the moral statute of the foetus as soon as from the moment of the conception. The empiric functionalism recognizes a moral value, which depends on the degree of the development. It is based on the gradualism, i.e. opinion that the foetus is no person. Based on these approaches, there are two concepts: “Sanity of life” and “quality of life”. The first of them considers the human life as sacred and in accordance with this, it must not be interrupted under any circumstances; the second one considers the life value depending on its quality (Křepelka 2011). The second approach is frequently adopted in medicine (Hrubý & Fedor-Freybergh 2014). The foetus viability is delimited and defined by a thesis that the foetus is able to autonomously survive beyond the mother organism. There are two types of viability: independent, where the foetus is able to autonomously live without the mother organism but on account of a technological support, and factual, where the autonomous existence of the foetus is independent of the mother organism even without any technical support. The product viability is stepwise shifted to earlier gestation weeks just due to the technological development (Zlatohlávková 2011).

The viability can be characterized by biological limits, which are particularly defined by the maturity and thus by the gas exchange. Of course, immaturity of other organs is also of importance. In the evaluation of the social limit, it is necessary to take into account “survival without severe involvement”.

The assisted reproduction (AR) has already become a common part of the therapy of infertile pairs. Their representation in the population is reportedly between 10 and 15%. The highest success of the treatment by AR methods (30–40%) is considerably promising for infertile pairs as to solving their problems with pregnancy. Deliveries of newborns from the assisted reproduction were previously very hazardous. Thus, introduction of only one embryo became very beneficial over recent years. This is a way, which can not only positively affect the success of the intervention but also reduce negative effects of the perinatal mortality. Premature deliveries, mother morbidity in association with more frequent deliveries by the Caesarean section and newborn morbidity and mortality are only further small fragments in the mosaic of adverse results of the assisted reproduction methods (Velemínský & Velemínský 2010). The decision about conducting the foetus delivery on the limits of the foetus viability belongs to an experienced obstetrician and requires a high professional but also psychological, social and ethical capability. After that, the decision is considerably affected by the woman or by both parents based on their opinions and attitudes. Basic condition for managing this complex situation is intensive interdisciplinary cooperation, particularly of the obstetrician and neonatologist, the participation of a psychologist being also obvious. Till the 24th to 25th weeks, in general, it is recommended to put emphasize on the individual attitude with extensive information of parents about the foetus prognosis from the viewpoint of mortality as well as long-term morbidity (Gothová 2013; Měchurová 2013).

The “institute of prenatal consultation” is an important part of making decisions about conducting deliveries of IBLW newborns. During this, the physician or possibly physicians intervene in a very sensitive and serious area of problems, where the result can affect lives of the whole family. In the course of prenatal consultations, the fact should be kept in mind that the results of negotiations between the physician and parents must be legally justified, i.e. an Informed Consent should be conclusively signed. Any decision without the Consent is not only non-ethical, but also illegal. The consulting physician must acquaint the parents with risks associated with performing possible surgical intervention to the foetus, family, but also to the health of the mother (see different attitudes of the family in the case report mentioned above). The Informed Consent actually demonstrates an agreement between two autonomous persons – participants, i.e. the physician and the mother or possibly also the father. Several variants of the solution of the existing
situation should be proposed. The parents can right-
fully refuse the medical proposals, but on the other
hand, the physician has no right of intervention unless
the woman life is endangered. In the course of con-
sultations, the physician should be aware of the above
mentioned theoretical facts. However, the physician
cannot only execute the patient’s request. Prenatal
consultations are a very important component for the
obstetrician’s work when making decisions about the
method of conducting the delivery. The physician is
frequently forced to solve the problem acutely, being
pressed for time, which is a considerable drawback of
these negotiations (Hrubý & Fedor-Freybergh 2014;
Křepelka 2011; Romero et al. 2006; Smith et al. 2012).
Kett (2015) emphasizes the importance of prenatal
consultations and describes three areas, in which the
current practice is ethically problematic: (1) risks to
competence, (2) risks to information, and (3) risks to
trust. The two case reports presented here shows two
situations, in which the women chose utmost solu-
tions in a certain sense of the word. In the first case,
the woman attempted to save the foetus, where she,
after experiencing considerable several-month mental
and somatic stress, decided to take advantage of an
imaginary hope, or chose the surgical intervention to
terminate the pregnancy; the second woman preferred
avoiding a damage to her health and thus endangering
possible success of a future pregnancy, and agreed with
vaginal delivery. Both women certainly experienced
unenviable moments and their decision was undoubt-
edly strongly affected by their view of the situation
and ability to overcome problems resulting from their
conscience. Catlin (2009) brings data on 5 newborns
from the group of incredible babies with drawing the
following conclusions: These 5 stories take us through
the periods of “all must be done” to “parents can
choose” and to “are we overdoing?”. Neonatal nurses
can receive guidance from these wise parents today.
Mardegan et al. (2015) found minor differences in the
management of extremely low-birth-weight infants
between Italian academic and non-academic institu-
tions, apart from the thermal management. Miltaha
et al. (2015) accent influence of perinatal factors in
short- and long-term outcomes of infants born at 23
weeks of gestation. This is a retrospective study over a
25-year period (1987–2011) of 87 successfully resusci-
tated infants at 23 weeks of gestation. We investigated
the effects of poor prenatal care, race, gender, chorio-
amnionitis, antenatal corticosteroids, delivery route/
location, low 5-minute Apgar score, birth weight, and
multiple births on short- and long-term outcomes. The
mortality rate was 43% (37/87). A total of 88% (44/50)
of the survivors were followed at 2 years corrected age
with 66% (29/44) diagnosed with a moderate-to-severe
neurological impairment. Outborn and multiple birth
infants had significantly higher mortality. Multiple
perinatal factors significantly influence outcomes at
the threshold of viability. Litmanovitz et al. (2015)
accent active approach in obstetric management of
pregnancies appears to impact the neonatologists’
decision to undertake AIT treatment in infants born at
the border of viability. The higher odds for AIT associ-
ated with obstetric interventions might contribute to
the reported beneficial effect of antenatal steroids and
cesarean delivery on the survival of infants born at the
border of viability.

Poole et al. (2016) demonstrated that the birth weight
status significantly affected the intensity and direction
of associations between childhood motor coordination
and adult psychiatric outcomes. Wapner (2013) empha-
izes the importance of the antenatal steroid adminis-
tration in periviable deliveries. Their importance and
beneficial effects on reducing the morbidity and mortal-
ity were demonstrated in long-term monitoring of new-
borns delivered between weeks 23 and 26. The effect is
lower in the 22nd week. Winer and Flamant (2015) point
out the importance of “the management”, particularly in
deliveries before the 26th week of pregnancy: “If active
management is more difficult with very preterm infants
24–25 WG, mortality is increased comparing with new-
borns of more than 26 WG. This is partly explained by
limitations of active neonatal intensive care. This jus-
tifies a human, medical, and ethical multidisciplinary
discussion including the parents’ wishes for an active
resuscitation or a palliative management. Using the
only criteria of gestational age is not a reliable tool to
predict survival and neurodevelopmental outcome of
preterm infants. It is very important to identify other
antenatal factors such prenatal corticosteroid adminis-
tration, gender, foetal estimated weight, amniotic fluid
and absent/reverse end diastolic flow umbilical doppler.
Implication and listening the parents’ preferences are
essential after individual information, objective and a
honest counseling including mortality, morbidity and
risks of neurocompartmental impairments. Birth and
counseling should be done in a reference maternofoetal
centre with obstetricians and neonatologists specialized
in this topic. A real difficulty is to consider the route of
delivery and the possibility that caesarean section could
improve survival rates. Induction of labour is very often
a high risk of failure and the route of delivery remains
controversial, and this is a real question in order to
improve survival rates. The literature data are poor
and conflicting without randomized trials. Caesarean
section presents maternal risks such as pathologic pla-
centation, haemorrhage delivery and increasing risks
for the subsequent gestation. So, if it is not a good idea
to recommend a systematic caesarean delivery, it is not
ethical to refuse this route of delivery only because of
the gestational age even in extremely premature birth”.

Caughe and Burchfield (2014) deals with the cost-
effectiveness of the periviable care at the gestational
age of newborns delivered between weeks 22 and 24.
He notes that if the gestational age of the neonate
decreases, then the costs increase and the cost-effective-
ness threshold is harder to achieve.
CONCLUSION

There is an interesting fact that problems of conducting LBW deliveries is frequently dealt with by students of the branch midwife in their works. Two case reports on women delivering the foetus on the limits of its viability were presented. The author attempted to point out the dilemma faced by the women in these difficult situations and their different considerations of possible solutions. In both cases, a tight cooperation between the obstetrician and neonatologist was necessary within the framework of the communication with the parents as well as of securing the foetus itself.

REFERENCES