Abstract

It is an article about the historical evolution of nursing, emphasizing conceptual and reflexive aspects about the impact of technology on the care process in Obstetrical/Neonatal ICU. Although the technology has contributed to the survival pregnant/premature infants extremes and very low weight in recent years, reveals at times a mechanical and impersonal service, a counterpoint to ethical and human issues. A critical-reflexive discussion is proposed under the use of technology in obstetric and neonatal intensive care, highlighting their implications and adaptations to maternal and child needs. It was concluded that what determines whether a technology is good or bad, if it dehumanises, depersonalises or objectifies care is the way in which it is used, making it necessary to improve and update health professionals. In this reflexive exercise, new ways of caring will be rethought, using art, sensitivity and creativity in the appropriation and humanization of technologies.

Keywords
Nursing Informatics; Information Technology; Nursing Care; Maternal Health; Intensive Care Units; Neonatal.
Introduction

The Postmodern Obstetric and Neonatal category had its initial mark in France in the year 1880, through the sophistication of techniques and equipment, guaranteeing the survival of preterm and/or diseased neonates, hitherto considered unfeasible [1].

While it is undoubtedly necessary, the use of technology should consider the potential risks and benefits. From this understanding, technology is neither good nor bad, but the human application is what determines its breadth of nature. Therefore, the limit between science and technology is not well defined, losing its importance if it is not bound to moral and ethical values [2].

When we refer to technology, we associate this term with Intensive Care Units (ICUs), assigning it to machines and equipment. This reductionist and simplistic concept sometimes delimits a complex barrier between what is human and what is artificial. The appearance itself, for example, of a pregnant woman admitted to an Obstetric ICU for non-Obstetric causes and a Newborn (RN) in an incubator, often showing equipment, and can transform the woman/newborn into only one detail for the eyes of some [3, 4].

This environment, although essential for the sophisticated technology that assures life, is also hostile to the aggressiveness of the invasive techniques and procedures to which the pregnant women and the newborns are subjected. Such activities, sometimes necessary, can transform the professional, making him insensitive, rational and inhuman, evidencing the Empowerment of science and technique on man.

In this way, the dimension of technology, as unfolding of scientific rationality, comes to be represented as a dehumanizing force, which depersonalizes and objectifies the ways of caring, when it is not used properly. Since the Obstetric and Neonatal ICUs are a well-founded site of machines, situations in which technology reigns over social relations, implying impersonality, coldness and devaluation of human care [3, 5].

Nursing, as opposed to technology, as the foundation of care in the Obstetric/Neonatal ICU, requires a rethinking of all forms of relationship between mothers-babies, professionals and family, in the adequacy of its use to different knowledge, offering individualized, safe, ethical and human care. Thus, aiming at the perspective of overcoming all the possibilities and limits.

This article aims to provide a critical-reflexive evaluation of the use of nursing in relation to technology in the care of Obstetric/Neonatal ICUs, highlighting its implications and adequacy to the needs of the pregnant woman and her family.

From this perspective, the study presents an extreme resourcefulness for applicability in the care practice of Obstetric and Neonatal ICUs, taking into account the adequacy of technology in nursing actions, seeking new ways for a more ethical and humane assistance. In addition, it helps to rethink new ways of caring, using art, sensitivity and creativity, as well as technical and instrumental aspects.

The Historical and Technological Evolution of Obstetrics and Neonatology

The model of childbirth care in Brazil was incontestably influenced by the American paradigm, which is characterized by the institutionalization, use of innovative technologies, incorporation of a large number of interventions, greater concern with pathologies and care conditioned to the convenience of the professional [6].

In Brazil of the 60s, with the creation of the National Institute of Social Security (INPS), there is a strong impulse regarding the incorporation of medical technology, supported by state intervention. This trend has stimulated the uncontrolled privatization of healthcare and is also a major source of corruption. [6].

Until the sixteenth century, maternal and infant mortality rates and premature birth rates were high,
as there were no establishments for the care of this public. Children born prematurely were expected to be lethal, as well as those born with malformations. There was a feeling that natural selection would take care of the children and consequently of the puerperas “[…] Less adapted to survival, as suggested by the term […] Weak, attributed to preterm infants” [7].

It is noteworthy that with the passage of time and with technical and scientific advances, pediatrics gained a subgroup of specific knowledge, which was denominated Neonatology, defined as the knowledge of the human newborn; Not a system, but a whole that needs to be treated in this way [8].

However, even with the change in care to newborn delivery to the hospital setting and with all technological developments, there is still a difficulty in accessing quality health services for all women seeking care, high levels of maternal and neonatal morbidity and mortality, very high levels of operative delivery, most of the time without real indication, abusive use of the latest technology accelerating the process of evolution in disconnection with the reality necessary for this public [8, 9].

The chance of a woman being admitted to an Intensive Care Unit (ICU) during the pregnancy-puerperal cycle is much higher than that of a young, non-pregnant woman. It is estimated that 0.1% to 0.9% of pregnant women develop complications, requiring ICU admission, being the main indications hypertension, hemorrhage, respiratory insufficiency and sepsis. It is emphasized that the prognosis of these patients is generally good, generally requiring minimal intervention, with low mortality rates, generally less than 3% [10].

The clinical-obstetric interface is especially important when it comes to an intensive care unit for patients in the pregnancy-puerperal cycle. Physiological changes characteristic of gestation distinguish these women from other young adults. Various clinical conditions have their course affected by the pregnancy process, in addition to varying the interpretation of diagnostic tests and laboratory values. In contrast, complications unique to pregnancy may not be familiar to clinicians, such as pre-eclampsia/eclampsia and amniotic fluid embolism. Thus, midwifery professionals should be familiar with the basic principles of intensive care, both to treat obstetric patients and to act as consultants within the intensive care team [10].

Neonatal care, considered as modern, delimited its first actions in France, with the renowned invention of the incubator (Obstetrician Stephane Etienne Tarnier 1880). However, Pierre Budin, as Tarnier’s disciple was the first to transcribe on early care, considered thus, the first neonatologist of the era called “modern” [11].

In the 1920s, with the evolution of scientific knowledge, the consolidation and organization of technological advances took place. New centers were created, guaranteeing to the Maternal-child public specialized nursing care, as well as equipment for controlling and maintaining the life of this clientele [12].

In these technological innovation services for care, only pregnant women with complications and premature neonates were admitted, with the minimum of intervention and handling by the professionals, which aimed to prevent infections and recovery of the body through measures of temperature control, rest, hygiene, nutrition, stillness and other [13].

Such measures, although fundamentally necessary, deprived the father of a more intimate, intense and lasting contact with the mother of his baby/baby, interfering in the affective bond between them [14]. The participation of man in the process of technological evolution must be constant for the maturation of the tools of care, since it is perceived that man is able to develop all the activities of care for causes fundamental to his life, and also for the your family [15].

With the technical-scientific advance, studies on feeding and prematurity emerged, and new
treatments were introduced such as the use of silver nitrate, prenatal and oxygen administration. Measures were adopted to control temperature and hospital infection, with restricted isolation of the mother/newborn, reducing maternal and infant mortality rates [11, 16].

It is important to clarify that Nursing played an important role in the historical and technological development of Obstetrics and Neonatology. With regard to Neonatology, recognized by pediatrician Julius Hess, who published an article describing the best results about caring for the premature newborn by well-trained nurses. Emerging, from this moment on, the nursing specialization, focused on the care of the premature neonate. At the Chicago Preterm Center, an investment fund was created for the training of nurses in the area of Neonatology [17]. In obstetrics, nurses have always played a fundamental role in the good practices and technological advances of delivery and birth care, as well as in the present day, to intensive obstetric nursing care [18].

Since the 1960s, great progress has been made in obstetric and neonatal care, giving rise to neonatal ICUs and Intensive Care Units in Maternities according to their tertiary public needs [19]. New knowledge, equipment, treatments and techniques were introduced in the Obstetric and Neonatal care, contributing to the reduction of the mortality rate in this group and, consequently, to an increase of the survival of these [4, 10]. All this technological apparatus provided a very noisy and noisy environment, requiring a greater number of professionals in intensive obstetric and neonatal care. We went from minimal manipulation to intervention and excessive manipulation of the team of intensivists [8].

In the mid-1990s, the father/husband remained in ICUs, and this practice was widely accepted and encouraged. It favored a deep and lasting bond, bringing positive effects, both for man and for binomial. This link has become important for the success of any therapy [4].

It is noticed that all these technological advances have culminated, at the present time, with technologies capable of guaranteeing the survival of the maternal-infant public/extreme and very low birth weight infants. However, this interventionism has become one of the multiple challenges faced by the health team, ie the prudent use of this technology, guaranteeing the survival of patients and their quality of life in the future.

**Assistance actions in Obstetrical and Neonatal ICU: Technology of Care or Technological Care**

Gestation, even triggering important anatomical, endocrine, hemodynamic and immunological changes in the female organism, maintains a dynamic equilibrium by compensatory mechanisms that are still little studied. The limit between normality and installed pathology is extremely tenuous and its imbalance represents a high risk of maternal-fetal morbidity and mortality. Thus, some factors may be present in order to become potential risks of complications to the health of the mother and/or child [8, 20, 21].

Some of the elements that constitute risks may be present even before the occurrence of pregnancy, such as those related to the ideal maternal age (less than 15 years and over 35 years); the existence of structural abnormalities in organs of reproductive character; Insecure marital status; Family conflicts; low education level; Dependence on licit or illicit drugs; Exposure to occupational hazards [22].

There are some pre-existing clinical conditions that represent risks in pregnancy, are: arterial hypertension, heart diseases, pneumopathies, nephropathies, endocrinopathies, epilepsies, infectious diseases, hemorrhages, gestational diabetes, previous preterm birth, neoplasias, among others [22].

Identifying the limit between normality and the actual and established pathology is fundamental in the prevention of health problems for the pregnant woman and the fetus, because when obstetric com-
Complications are not treated in a timely manner and/or handled incorrectly, may evolve to a clinical condition that includes complex care, and there may be a need for hospitalization in an Intensive Care Unit (ICU). In this environment, the interventions of the health professionals will be based on the attempt to revert to the clinical instabilities of the assisted patients, offering conditions of physical recovery and aid for later social reintegration [21, 23].

It is noticed that in developed countries the need for ICU admission by obstetric patients is low. These countries have efficient prenatal care and low maternal mortality rates, while in developing countries 10% of general ICU admissions are represented by patients in the pregnancy-puerperal cycle and maternal mortality is considerably higher [21, 24].

The chance of a woman during the pregnancy-puerperal cycle being admitted to an ICU is much higher than that of a non-pregnant young woman. It is estimated that 0.1% to 0.9% of pregnant women develop complications, requiring hospitalization in advanced support units. The prognosis of these patients, in general, is favorable, generally requiring minimal intervention, with a low mortality rate, generally less than 3% [12].

The clinical-obstetric interface is of particular importance for an intensive care unit for patients in the pregnancy-puerperal cycle, knowing that the physiological changes characteristic of gestation distinguish these patients from other young adults. Several clinical conditions have their course affected by pregnancy, including variations in the interpretation of diagnostic tests and laboratory values. Pregnancy-only complications may not be familiar to clinicians, so obstetricians and other members of the health care team should be familiar with the basic principles of intensive care [10, 12].

That is, despite all advances in obstetric care, maternal and perinatal morbidity and mortality continue to be high in Brazil, incompatible with the country’s current level of economic and social development [22].

The most common causes of ICU admission in the pregnancy-puerperal cycle are hemodynamic instability and respiratory failure. Therefore, the following are noteworthy: severe pre-eclampsia, disseminated intravascular coagulation (DIC), amniotic fluid embolism, acute respiratory distress syndrome (ARDS), and trauma [23, 25].

It is known that the Obstetric and Neonatal ICUs are commonly derived from materials of technological action. The nursing is the carrier of all normative tools for the operationalization of human care, even though it plays an important role in the effective participation of the maturation of these technologies.

Conclusion

It is evident that technological development and changes in obstetrics and neonatology were inevitable, resulting in the emergence of new equipment, treatments, knowledge and sophistication of the techniques, indispensable to the maintenance of life and to the improvement of obstetric and neonatal intensive care.

In this context, it is possible to perceive the incorporation of new technologies in obstetric and neonatal care, requiring a critical-reflexive evaluation on the use of this technology and its implications from the ethical point of view, benefits, harms, limitations and adaptations to the needs of the Maternal and child health.

When reflecting on the impact of nursing versus technology as the foundation of care in the obstetrical/neonatal ICU, we must understand that what determines whether a technology is good or bad, whether it dehumanises, depersonalizes or objectifies care, is not the but in what way it is used by professionals, its intentionality and attitude in the face of possible complications and damages arising from its use.

Technology reveals certain knowledges and ways of caring. However, it is necessary to improve and
update the health professionals so that they can apply the knowledge in a responsible and rational way, developing a critical and reflexive sense of their actions. In addition, new ways of caring will be rethought, using art, sensitivity and creativity in the adequacy and humanization of technologies.

The study allows a critical and reflexive evaluation on the adequacy of nursing to the technology as the foundation of care in obstetrical/neonatal ICU, as well as the possibility of adopting measures and strategies that value and respect human life in all its dimensions, providing an individualized and personalized care to Maternal and child health and their families.

References


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