

Revista Bioética ISSN: 1983-8042 ISSN: 1983-8034

Conselho Federal de Medicina

Rodrigues de Menezes, Gabriela; Marques Rosa, Ailton; De Guimarães e Queiroz, Ana Paula Dossi Sífilis congênita e recusa terapêutica da gestante: análise jurídica e bioética Revista Bioética, vol. 31, no. 1, 2023, pp. 1-13 Conselho Federal de Medicina

DOI: https://doi.org/10.1590/1983-803420233010PT

Available in: https://www.redalyc.org/articulo.oa?id=361575107009



Complete issue

More information about this article

Journal's webpage in redalyc.org



Scientific Information System Redalyc

Network of Scientific Journals from Latin America and the Caribbean, Spain and Portugal

Project academic non-profit, developed under the open access initiative

### **Abstract**

Revista Rinética

Print version ISSN 1983-8042 | On-line version ISSN 1983-8034

Despite public policies, congenital syphilis infection remains a reality in the health system routine. Moreover, its epidemiological rates continue to be relevant and worrisome despite widespread and effective preventive methods, highly cost-effective treatments available in the Unified Health System, and high-coverage pre-natal care. A major obstacle to eradicating this scenario is treatment refusal by the progenitor. Important questions regarding medical responsibility in relation to refusal, the pregnant woman's responsibility towards the unborn child, and the legal implications involved arise from this context. This article seeks to answer these questions and their legal and bioethical repercussions.

**Keywords:** Fetus. Syphilis, congenital. Maternal-fetal relations. Treatment adherence and compliance. Patient rights.

### Resumo

## Sífilis congênita e recusa terapêutica da gestante: análise jurídica e bioética

A infecção congênita pela sífilis é uma doença que, apesar dos esforços públicos, ainda se mantém na rotina do sistema de saúde. Embora haja métodos de prevenção efetivos e muito disseminados, tratamento com alto custo-benefício e disponível no Sistema Único de Saúde, além de assistência pré-natal com alta cobertura, as taxas epidemiológicas da enfermidade continuam relevantes e preocupantes. Umas das barreiras à erradicação desse cenário é a recusa terapêutica da genitora. Com isso, indagações importantes são levantadas, como a responsabilidade médica em relação à recusa, a responsabilidade da gestante para com o nascituro e as implicações jurídicas que perpassam essa problemática. O propósito deste artigo é responder a essas questões e suas repercussões bioéticas e jurídicas.

**Palavras-chave:** Feto. Sífilis congênita. Relações materno-fetais. Cooperação e adesão ao tratamento. Direitos do paciente.

#### Resumen

### Sífilis congénita y rechazo terapéutico por las mujeres embarazadas: análisis legal y bioético

La sífilis congénita es una enfermedad que aún sigue en la rutina del sistema de salud a pesar de los esfuerzos públicos. Aunque existen métodos de prevención efectivos y generalizados, los tratamientos con alto costo-beneficio y disponibles en el Sistema Único de Salud, además de la atención prenatal con alta cobertura, las tasas epidemiológicas de la enfermedad siguen siendo relevantes y preocupantes. Una de las barreras para su erradicación es el rechazo terapéutico de la madre. Por lo tanto, se plantean cuestiones importantes, como la responsabilidad médica con relación al rechazo, la responsabilidad de la mujer embarazada por el feto y las implicaciones legales que impregnan este problema. El propósito de este artículo es responder a estos interrogantes y sus repercusiones bioéticas y legales.

**Palabras clave:** Feto. Sífilis congénita. Relaciones materno-fetales. Cumplimiento y adherencia al tratamiento. Derechos del paciente.

The authors declare no conflict of interest.

Syphilis is a systemic infectious disease that can be transmitted by sexual contact or vertically (maternal-fetal) <sup>1-3</sup>. If left untreated, it can progress chronically and cause irreversible damage to the affected individual <sup>4</sup>.

In Brazil, in 2019, according to data from the Notifiable Diseases Information System (SINAN)<sup>5</sup>, there were reports of almost 153,000 cases of acquired syphilis, approximately 61,000 cases of syphilis in pregnant women, and more than 24,000 cases of congenital syphilis (transmitted from the infected pregnant woman to the fetus). In about 40% of cases, maternal infection can result in fetal loss due to spontaneous abortion, stillbirth and death 6,7. That same year, the incidence rate for congenital syphilis was 8.2 cases per 1,000 live births, and the prevalence of syphilis in pregnant women was 1.6% 3,5. In addition, between 1998 and 2019, the records show 2,768 deaths from congenital syphilis for children under one year of age 5.

It is estimated that 60% to 90% of newborns with congenital syphilis do not present clinical manifestations at birth <sup>8</sup>. However, early congenital syphilis, manifested up to 2 years of age, can cause prematurity, low birth weight, mucocutaneous lesions, bone abnormalities, hepatosplenomegaly, pseudoparalysis of the limbs, respiratory distress, serosanguinous rhinitis, central nervous system involvement, anemia, jaundice and generalized lymphadenopathy. The late form of the disease, after 2 years, is manifested by osteoarticular lesions, dental deformities, neurological deafness, interstitial keratitis, hydrocephalus and intellectual disability disorder <sup>2,9</sup>.

To prevent congenital syphilis, it is necessary to properly treat the infected pregnant woman and her partner, which implies ensuring access to prenatal care? This enables early detection of the disease during pregnancy, allowing the institution of appropriate therapy and preventing maternal-fetal transmission <sup>10,11</sup>. From this perspective, the Ministry of Health has built, over decades, public policies aimed at combating congenital syphilis through prenatal care and follow-up <sup>12</sup>.

In the Unified Health System (SUS), prenatal care is the responsibility of primary health care (PHC) and must be started by the 12th week of pregnancy<sup>3</sup>. For cases of syphilis, pregnant women are considered adequately treated if their penicillin treatment is

completed up to at least 30 days before delivery, according to the stage of the maternal disease, and the partner is treated concomitantly <sup>13,14</sup>.

However, adherence to prenatal care has been insufficient: in 2018, among the mothers of 26,531 children diagnosed with congenital syphilis, 13.4% had not sought prenatal care <sup>5</sup>. Moreover, regarding maternal treatment, only 5% received adequate treatment, 55.1% were inadequately treated, 26.5% did not receive treatment, and 13.3% were ignored <sup>5</sup>.

Not only the lack of prenatal care, but also its delayed beginning subject the unborn child to potential health risks, such as longer exposure to *Treponema pallidum*, increasing the risk of complications <sup>6,13</sup>. Moreover, pregnant women refusing syphilis treatment builds a more serious scenario, since, depending on the clinical phase of the disease, the risk of transmission can reach 100% <sup>15,16</sup>.

In the maternal-fetal relation, physicians must consider the implications of their conduct and the procedures employed for both the pregnant woman and the unborn child, assessing the risks to both lives, observing the bioethical principles of beneficence and non-maleficence <sup>17,18</sup>.

Responsible medical practice is essential to guarantee the rights of the unborn child, since the professional is in close contact with the pregnant woman and has technical instruments to assess maternal and fetal health, playing an important role in possible conflicts involving the two <sup>18-21</sup>.

Given the severity of the damage caused by syphilis, which can affect unborn children, and the high incidence of syphilis during pregnancy, the following doubts remain:

- What is the responsibility of the physician in the health care of a pregnant woman and her unborn child in case she refuses treatment?
- What are the responsibilities of the pregnant woman to the unborn child?
- What are the legal implications (for physician and patient) of the patient's voluntary absence from prenatal care or refusal of treatment in cases of syphilis?

This article aims to discuss pregnant women's refusal of treatment, especially in cases of syphilis, and the bioethical repercussions of the maternal-fetal conflict. It also aims to point out the rights of unborn children, the pregnant

women's responsibility for the conceptuses, and the medical responsibility as per the Brazilian legislation in this situation.

The subject's relevance to public health—in addition to the scarce scientific literature on the duties of those participating in the healthy development of the fetus—justifies this discussion, enabling the clarification of any doubts that health professionals may have about the subject.

## Method

This is a narrative literature review, based on an online bibliographic survey conducted on the SciELO, Google Scholar and LILACS databases, in official documents of Brazil's Ministry of Health (MS) and Federal Council of Medicine (CFM), in Brazilian legislation, and in academic books. The descriptors used were: "direitos do nascituro", "sífilis congênita", "maternal-fetal conflict," "fetal patient," "congenital syphilis," and "refusal of treatment."

The inclusion criteria were: 1) electronic availability of the full text; 2) publication in Portuguese or English; and 3) texts published between 2000 and 2020. The search retrieved 219 articles, of which 20 met the proposed criteria. After the exploratory, selective and interpretive reading of the accumulated literary arsenal, the data were analyzed. The pieces of information constructed were appropriately referenced and cited, respecting ethical aspects and preserving the authenticity of opinions.

## Results and discussion

# Refusal of treatment and maternal-fetal conflict

Refusal of treatment is the patient's objection to the necessary medical treatment and results from the principle of autonomy of will. Thus, major and capable patients may decline the treatment proposed for their case.

The understanding of and respect for this principle are already consolidated in medical practice, as confirmed by some articles of the Brazilian Code of Medical Ethics (CEM) <sup>22</sup>. However, in situations involving minor or incapable patients,

there is still no consensus on which principle should prevail: autonomy or beneficence. With regard to syphilis, this discussion—appearing during prenatal care—arises when the pregnant woman refuses treatment or neglects its practice, endangering the life of the unborn child.

To minimize the risks of treatment refusal or neglect, comprehensive and effective prenatal care is essential so as to ensure the pregnant woman is provided care and follow-up, diagnostic tests, appropriate treatment, and binding to the health care unit and maternity ward <sup>9,23</sup>. In Brazil, despite advances in care at this stage of women's lives, the number of cases of gestational and congenital syphilis remains concerning.

A Brazilian cohort study conducted between 2011 and 2012 with 23,894 pregnant women obtained a prevalence of 1.02% of syphilis in pregnancy, with a higher rate in pregnant women who did not receive prenatal care follow-up (2.5%) and who used the public service in childbirth care (1.37%) <sup>24</sup>. As for congenital syphilis, between 2011 and 2012, the estimated incidence was 3.51 cases per 1,000 live births. There were 246 cases of gestational syphilis and 84 cases of congenital syphilis, with an estimated vertical transmission rate of 34.3% <sup>25</sup>.

The situation of the disease in the country is aggravated by pregnant women's refusal or omission as to appropriate treatment. In a systematic review and meta-analysis study, Gomez and collaborators <sup>26</sup> analyzed the estimates for adverse pregnancy outcomes among pregnant women with untreated syphilis and pregnant women without syphilis. The percentage of adverse pregnancy events in syphilitic pregnant women reached 66.5%, while in pregnant women without syphilis it reached only 14.3%.

Neonatal deaths and mortality during the first year of life were more frequent in untreated syphilitic pregnant women compared to those without the disease, showing 9.3% and 10% higher frequency, respectively. In addition, fetal deaths and stillbirths also showed a higher frequency in pregnant women with untreated syphilis, reaching an estimate of 25.6%, compared to 4.6% in those without syphilis. Prematurity or low birth weight were also more frequent in children of pregnant women with the disease compared to children of mothers without syphilis (5.8% higher frequency) <sup>26</sup>.

Ohel and collaborators 27 compared the occurrence of adverse effects during pregnancy and delivery among pregnant women who did not undergo treatment and those who did. Among others, the following obstetric complications during pregnancy and delivery were more frequent for the population of pregnant women who refused medical interventions in relation to the control group: preterm birth (18.6% to 8.1%), fetal malformations (8.2% to 4.1%), total perinatal mortality (3.3% to 1.5%), premature placental separation (1.8% to 0.8%), intrapartum mortality (0.8% to 0.1%) and postpartum hemorrhage (0.8% to 0.4%). The authors considered refusal of treatment in obstetrics as an independent risk factor for the occurrence of complications during pregnancy and during labor <sup>27</sup>.

In addition to being a relevant issue for public health, pregnant women's refusal of treatment has repercussions on bioethical, ethical and legal matters; therefore, although maternal and fetal interests coincide in most cases, there are situations in which they differ, thus leading to maternal-fetal conflict <sup>18,21</sup>. Conflicting situations can occur when pregnant women adopt health care conducts based on their own choices, behaviors and life habits or expose themselves to occupational risk. Such conflicts may arise at any time during prenatal care and affect fetal well-being—for example, drug and alcohol use, risky sexual practices, and refusal to adhere to medical recommendations <sup>28-31</sup>.

Flagler, Baylis, and Rodgers <sup>28</sup> state that although maternal-fetal conflicts are limited to the mother and fetus, the real conflict occurs between the pregnant woman and the health care team. According to Oberman <sup>30</sup>, the physician, by applying a conduct based on "fetal interest," assumes a non-neutral position in maintaining the conflicting situation and, consequenly, starts to play a central role in this context.

According to Beauchamp and Childress <sup>32</sup>, in the physician-patient relationship, maternal-fetal conflicts usually establish a contrast between two principles of bioethics: autonomy of the pregnant woman and beneficence to the fetus <sup>33</sup>. According to Fasouliotis and Schenker <sup>18</sup>, prioritizing the beneficence to the fetus rather than maternal autonomy compromises not only the pregnant woman's autonomy, but also her beneficence. The authors state that, by applying full personality to the fetus, the pregnant woman can be legally

limited as to the control and freedom of her body, since she is able to cause harm to the fetus.

That is, by equating the moral status of the fetus with that of the pregnant woman, the refusal of recommended medical treatment can be invalidated if this act causes more harm to the fetus than to the pregnant woman herself. They also point out that prioritizing the beneficence to the fetus has justification based on the condition that moral obligations are more important for those in greater need. Finally, they argue that the State can impose the execution of the obligations of the pregnant woman, since it has an interest in protecting the future children <sup>18</sup>.

Chervenak and McCullough <sup>34</sup> consider the principle of beneficence as responsible for safeguarding the interests of the fetus rather than maternal decisions. They claim that the viable fetus presents as a patient when before the physician. Fetal viability is another aggravating factor for reaching consensus on maternal-fetal conflicts.

According to Pinkerton and Finnerty <sup>35</sup>, this question is the basis for establishing ethical foundations about the fetal patient. However, in order to resolve this pending matter, it is necessary to issue medical and scientific positions regarding the beginning of life and the development of biological characteristics of the embryo, questions that remain undefined <sup>36</sup>.

Oduncu and collaborators <sup>37</sup> summarize maternal-fetal conflicts into four types: 1) between maternal beneficence-based and fetal beneficence-based medical obligations; 2) between fetal beneficence-based maternal obligations and fetal beneficence-based medical obligations; 3) between maternal autonomy-based and fetal beneficence-based medical obligations; and 4) between maternal autonomy-based and maternal beneficence-based medical obligations.

An approach similar to that found in Brazil is presented by Tran <sup>17</sup>, who describes three methods to deal with maternal-fetal conflicts. The first applies to the fetus the same rights as a child, so that the physician starts to treat two patients individually. Thus, the fetus has full rights geared toward their protection, which can compromise the autonomy of the pregnant woman.

The second method considers that the fetus has no rights and, therefore, does not have moral status unrelated to the mother, acquiring it only at birth. As a result, the pregnant woman

is legally supported to refuse any treatments or interventions, with full acceptance by the health team. Finally, the third method grants rights to the fetus as the pregnancy progresses, that is, the closer to the end of gestation the more rights they will have in relation to the beginning of pregnancy. However, the physician is not obliged to resort to judicial intervention to apply appropriate treatment to the refusing pregnant woman <sup>17</sup>.

In case the pregnant woman refuses medical interventions, before resorting to external opinions, physicians should talk to her, seeking to find and determine the reasons for her position, such as unawareness, fear, religious and personal beliefs, and psychological pressures <sup>28,36</sup>. The health care team involved in prenatal care plays an important role in relation to the mother and fetus, since it is able to direct individualized behaviors according to each pregnant patient <sup>26</sup>.

According to Hollander and collaborators <sup>38</sup>, communication between physician and patient represents the best solution to impasses during prenatal care. Physicians should respect, advise and be honest about the risks and benefits of certain interventions and, in the end, if a resolution is not reached, patient autonomy must be respected. Moreover, by initiating a judicial proceeding against the pregnant woman, the physician-patient relationship is compromised, which causes her to lose confidence in the health care professional, since he considered his own interests, which are independent of hers <sup>39</sup>.

Dickens and Cook <sup>39</sup> state that fetuses are not *de facto* patients, as they are associated with the mother's body and cannot be treated without affecting her. Notwithstanding, the authors note that the claim of patient condition to the fetus can benefit interests involved in prenatal care, since the objective is to promote the healthy development and birth of the fetus.

According to Hollander and collaborators <sup>38</sup>, just as the fetus has the right to protection, the pregnant woman also has the right to autonomy, bodily integrity and freedom. Thus, infringing on the pregnant woman's physical integrity to benefit the fetus is not ethically accepted, especially when they have not been born. To analyze the position of the health professional in relation to prenatal care, Brooks and Sullivan <sup>40</sup> point out that it is unlikely that the physician will

be held responsible for fetal damage resulting from maternal decisions given the autonomy conferred on the pregnant woman. However, they claim that physicians have civil responsibility for fetal damage caused by their negligence during the execution of medical procedures.

Fost <sup>41</sup> describes four conditions to justify the institution of medical treatments in case of refusal by the pregnant woman: 1) high probability of the fetus being born alive; 2) high probability of serious physical damage to the fetus, if the treatment is not applied; 3) high probability of these damages being avoided by use of the recommended treatment; and 4) low probability of serious damage to the mother by her undergoing the recommended intervention.

Contrarily, and despite convictions about the severity of damage caused by the lack of a certain medical intervention, Deprest and collaborators <sup>42</sup> state that physicians must respect the pregnant woman's autonomy and, consequently, her decisions. However, if she asks the physician to perform a procedure with uncertain benefit or significant risk to the fetus, the professional may refuse to perform it because the pregnant woman is not entitled to treatment that is not clinically justifiable. A similar position is adopted by Harris <sup>33</sup>, who understands that pregnant women have no legal obligation to take care of their conceptus, to whom they may have only a moral and ethical duty.

Consistently, Dickens and Cook <sup>39</sup> describe physicians who favor fetal interests and disregard the will of pregnant women as "traitors" to their true patients and their professional responsibilities, classifying as medical misconduct the act of instituting treatments for pregnant women without their consent. They also emphasize that the legal accountability applied to negligent medical conduct that causes damage to the physical integrity of the fetus—in case of injuries resulting from negligence at birth—is the same that would apply to any individual in this situation. In addition, even if born alive, the child may die as a result of these damages.

Pinkerton and Finnerty <sup>35</sup> establish an ethical path to be followed by physicians in relation to a capable pregnant woman who refuses some prenatal health intervention. Providing the pregnant woman with clarification about the proposed care procedure is the first step to be

taken by physicians, and it also has the purpose of obtaining informed consent from the patient.

The second and third steps, if necessary, consist in seeking advisory from institutional ethics committees, which will have the responsibility of seeking administrative and legal advice through hospital authorities. If, in the end, the pregnant woman remains persistent in her position, it is advisable to respect her decision, given her autonomy.

Strong <sup>43</sup>, analyzing ethical conclusions raised in courts for the imposition of indicated treatments on fetuses of capable pregnant women, reports that the medical treatment judicially ordered to the pregnant woman for her fetus is justifiable in rare and exceptional circumstances: if there are compelling reasons to annul maternal autonomy and insignificant risks of the imposed treatment for the patient's health.

Adams, Mahowald, and Gallagher <sup>44</sup> surveyed whether obstetricians agreed with or disagreed as to conflicts related to prenatal care. The statement "All effort must be made to protect the fetus, but the pregnant woman's autonomy must be respected" reached 95% agreement among respondents, whereas "A fetus does not have greater rights than a person who has already been born" obtained 87% agreement.

The results released are in accordance with the recommendations of the American College of Obstetricians and Gynecologists <sup>45</sup>. According to them, physicians must respect the decision-making capacity of pregnant women to refuse treatments recommended by them and coercive attitudes on the part of professionals involved in prenatal care are ethically prohibited and clinically inadvisable. Finally, the authors discourage medical institutions to seek court-ordered interventions, as well as the punishment of gynecologists and obstetricians who refuse to perform them.

Given the different positions, the discussion about the rights of unborn children is inconclusive, especially due to the lack of national and international consensus.

# Rights of unborn children and refusal of treatment

By definition, unborn children are persons who are to be born, since conception. In Brazil, their rights

were guaranteed by several documents, including the 1988 Federal Constitution <sup>46</sup>, which has as a family, social and State duty to guarantee the right to life, health, among others (art. 227). Similarly, the Civil Code deals with the beginning of civil personality in its art. 2, which establishes that the civil personality of the person begins at live birth; but the law safeguards, from conception, the rights of the unborn child <sup>47</sup>.

Furthermore, the Statute of Children and Adolescents (ECA) provides evidence of the reception of the conceptionist theory, since it provides, in its art. 7, the rights of the unborn child:

Children and adolescents have the right to protection of life and health, through the implementation of public social policies that allow for healthy and harmonious birth, in dignified conditions of existence <sup>48</sup>.

In the specific case of syphilis, it can be inferred that unborn children have the right to treatment, since they are guaranteed the right to the supply of all medicines necessary to preserve their health, to enable good evolution of pregnancy, and to carry out all treatments that can safeguard their health <sup>49</sup>.

Considering the rights guaranteed to unborn children, the family, the pregnant woman, and the medical team should ensure their effective application, which therefore entails responsibility. According to Berti, unborn children have the right that other people, particularly their mother, refrain from any act harmful to their health or adopt any conduct that may be detrimental to their development. Unborn children even have the right that their mother is prevented from consuming substances that may negatively affect their health, and judicial measures can be sought in this regard, even if they involve compulsory hospitalization 49.

During prenatal care, health teams within the SUS, whether in PHC or specialized network, should provide humanized care and systematic follow-up to the pregnant woman, contributing to early detection of diseases and gestational risk, preparing for childbirth and establishing the bond with maternity 50. In case of non-attendance or non-adherence to prenatal and postnatal care, the PHC is responsibility for recovering the bond with the mother.

In this regard, the ECA provides, in its art. 8, § 9, that primary health care professionals will actively

search for pregnant women who do not start or do not adhere to prenatal care, as well as puerperal women who do not adhere to postnatal care <sup>51</sup>.

In Brazil, specifically with regard to refusal of treatment, physicians are prohibited, as per art. 24 of the Code of Medical Ethics, from abstaining from guaranteeing that the patient exercise their right to freely decide on their person or well-being, and, as per art. 31, disrespecting the right of the patient or their legal representative to freely decide on the execution of diagnostic or therapeutic practices, except in case of imminent risk of death <sup>22</sup>.

That is, the patient has autonomy to accept or not the conduct directed by the physician. However, considering that up to 40% of cases of congenital syphilis can progress to spontaneous abortion, stillbirth and fetal death and that the pregnant woman is also responsible for ensuring the health of the fetus, congenital syphilis would constitute a health problem with imminent risk of death to the conceptus, allowing the institution of appropriate treatment to resolve the situation <sup>6</sup>.

In an attempt to regulate the subject, the CFM published Resolution 2,232/2019, which addresses the patients' refusal of treatment in medical practice. As per art. 5, physicians should not accept refusal of treatment in situations where it endangers the health of third parties or exposes the population to the risk of contamination due to the non-treatment of communicable disease or similar conditions, which constitute abuse of rights <sup>52</sup>.

Thus, it is understood that treatment refusal by syphilitic pregnant women constitutes abuse of rights, since it puts the health of the fetus at risk and exposes them to the risk of contamination through the placenta. However, this resolution has led to controversy and has not yet been fully received by the Brazilian legal system.

According to Almeida, the diversity of intrauterine medical techniques, including surgeries, indicates that Science is concerned with the unborn child at any stage of development, as an autonomous being independent of the mother, increasingly seeking to enable their normal development, with the objective of having a perfect birth <sup>19</sup>.

Thus, it is understood that physicians, able and responsible for exercising their profession based on science, and with the obligation to follow scientific advances, cannot simply "turn a blind eye" to the responsibility for the unborn patient, who, even while having rights, cannot express their will. In these situations, physicians, with common sense, have the duty of considering the application of the principles of autonomy and beneficence, in order to guarantee the principles of justice and non-maleficence.

The pregnant woman's responsibility is also certain, for any damage that the fetus may present, even if manifested times after birth. In this sense, according to Almeida, if the unborn child is a person, biologically and legally, if their physical integrity and health are not confused with those of the mother, even if the conceptus maintains a relationship of dependence with her, there is no way to deny them the right to physical integrity and health (...) <sup>19</sup>. That is because it is not licit for the mother to oppose the right to physical integrity lato sensu—which includes the physical integrity stricto sensu and the health of the unborn child, and not of the mother.

Thus, the mother cannot refuse to take medicine intended to preserve the health of the fetus nor refuse to undergo medical intervention aimed at dissolving medicine in the amniotic fluid that the fetus swallows instinctively. Although, in practice, such refusal may lead to situations of difficult solution, from the legal point of view it is clear and unequivocal: the mother should not have the right to health that is not her own, but rather of the unborn child.

It is clear that, if the child suffers harm due to the pregnant woman's negligence or refusal of treatment, the offended party will be entitled to civil reparation, as ensured by arts. 186 and 927 of the Civil Code <sup>47</sup>. But who would be responsible for this reparation? In Berti's words, the current trend, in some countries, is to solve problems of this nature in favor of children, eliciting the civil responsibility of the physician, alongside the responsibility of the woman: hence a shared civil responsibility <sup>53</sup>.

Chart 1 summarizes the unborn children's rights and the medical and maternal responsibility according to Brazilian legislation.

Chart 1. Unborn children's rights, medical and maternal responsibility, according to Brazilian legislation

| Rights of unborn children   |  |          |  |  |  |
|---|--|----------|--|--|--|
| Document  | Theme  |          | Description  |  |  |
| Civil Code<br>(Law 10,406/2002)                                   | Civil rights   | Art. 2   | A person's civil personality begins upon live birth; but the law safeguards, from conception, the rights of unborn children <sup>47</sup> .  |  |  |
| Constitution of<br>the Federative<br>Republic of<br>Brazil, 1988. | Right to dignity   | Art. 1   | The federative republic of Brazil, formed by the indissoluble union of the states, municipalities and the federal district, constitutes a Democratic State under the rule of law and is founded on: ()  III - the dignity of the human person 46.  |  |  |
|   | Right to life,<br>physical integrity,<br>image, honor<br>and privacy | Art. 5   | Everyone is equal before the Law, without distinction of any kind, ensuring to Brazilians and foreigners residing in the country the inviolability of the right to life, freedom, equality, security and property, in the following terms:  ()  III – no one shall be subjected to torture or to inhuman or degrading treatment;  () 46  |  |  |
|   | Right to health  | Art. 6   | Education, health, food, work, housing, transportation, leisure, security, social security, protection of maternity and childhood, assistance to the helpless are social rights, as per this Constitution <sup>46</sup> .  |  |  |
|   |  | Art. 196 | Health is a right of all citizens and a duty of the State, guaranteed by means of social and economic policies that aim at reducing the risk of diseases and other problems, and aim at providing universal and egalitarian access to actions and services for health promotion, protection and recovery 46.   |  |  |
|   | Right to life,<br>health, dignity and<br>physical integrity          | Art. 227 | It is the duty of the family, society and the State to ensure children and adolescents, with absolute priority, the right to life, health, food, education, leisure, professional qualification, culture, dignity, respect, freedom, as well as family and community life, and to safeguard them from all forms of neglect, discrimination, exploitation, violence, cruelty and oppression 46. |  |  |
| Statute of<br>Children and<br>Adolescents<br>(Law 8,069/1990)     | Right to life,<br>health,<br>and physical<br>integrity               | Art. 7   | Children and adolescents have the right to protection of life and health, through the implementation of public social policies that allow for healthy and harmonious birth and development, in dignified conditions of existence <sup>48</sup> .   |  |  |
|   | Right to dignity   | Art. 15  | Children and adolescents have the right to freedom, respect and dignity as human persons in the process of development and as subjects of civil, human and social rights guaranteed in the Constitution and laws <sup>48</sup> .   |  |  |
|   | Right to physical integrity and image                                | Art. 17  | The right to respect consists in the inviolability of the physical, psychological and moral integrity of children and adolescents, comprising the preservation of the image, identity, autonomy, values, ideas and beliefs, and personal spaces and objects <sup>48</sup> .  |  |  |
| Medical responsibilities  |  |          |  |  |  |
| Civil Code<br>(Law 10,406/2002)                                   | Civil duty   | Art. 186 | The person who, by voluntary action or omission, negligence or recklessness, violates the law and causes harm to others, even if only moral, commits an ilicit act <sup>47</sup> .   |  |  |
|   |  | Art. 927 | The person who, by an ilicit act (arts. 186 and 187), causes harm to others, is obliged to repair it $^{47}$ .   |  |  |

continues...

8

Chart 1. Continuation

| Chart 1. Continuation   |  |          |   |  |  |  |
|---|--|----------|---|--|--|--|
| Danimant  | Thomas   | Kignts   | of unborn children  |  |  |  |
| Document  | Theme Description  Medical responsibilities    |          |   |  |  |  |
| Code of<br>Medical Ethics<br>(CFM Resolution<br>2,217/2018)   | Consent  | Art. 22  | Physicians are prohibited from: Abstaining from obtaining consent from the patient or their legal representative after clarifying to them the procedure to be performed, except in case of imminent risk of death <sup>22</sup> .   |  |  |  |
|   |  | Art. 31  | Physicians are prohibited from: Disrespecting the right of the patient or their legal representative to freely decide on the execution of diagnostic or therapeutic practices, except in case of imminent risk of death <sup>22</sup> .   |  |  |  |
|   |  | Art. 36  | Physicians are prohibited from:<br>Abandoning patients under their care <sup>22</sup> .   |  |  |  |
| CFM Resolution<br>2,232/2019                                  | Treatment refusal                              | Art. 5   | Treatment refusal should not be accepted by physicians when it characterizes abuse of rights. § 1 The following characterizes abuse of rights: I – Treatment refusal that endangers the health of third parties. II – Refusal of treatment for communicable disease or any other similar condition that exposes the population to risk of contamination <sup>52</sup> .   |  |  |  |
| Statute of<br>Children and<br>Adolescents<br>(Law 8,069/1990) | Follow-up for pregnant women                   | Art. 8   | All women are guaranteed access to programs and policies for women's health and reproductive planning and, pregnant women, adequate nutrition, humanized care for pregnancy, childbirth and the puerperium and comprehensive prenatal, perinatal and postnatal care within the scope of the Unified Health System.  () § 9 Primary health care professionals will actively search for pregnant women who do not start or do not adhere to prenatal care, as well as puerperal women who do not adhere to postnatal care 48. |  |  |  |
|   | Communication<br>to responsible<br>authorities | Art. 245 | Physician, teacher or person responsible for health care and elementary school, preschool or daycare establishment failing to report to competent authority the cases of which they is aware, involving suspicion or confirmation of maltreatment against a child or adolescent: Penalty – fine of three to twenty reference salaries, applying double in case of recidivism <sup>48</sup> .  |  |  |  |
| Responsibilities of pregnant women                            |  |          |   |  |  |  |
| Civil Code<br>(Law 10,406/2002)                               | Civil duty                                     | Art. 186 | The person who, by voluntary action or omission, negligence or recklessness, violates the law and causes harm to others, even if only moral, commits an ilicit act <sup>47</sup> .  |  |  |  |
|   |  | Art. 927 | The person who, by an ilicit act (arts. 186 and 187), causes harm to others, is obliged to repair it $^{47}$ .  |  |  |  |
| Statute of<br>Children and<br>Adolescents<br>(Law 8,069/1990) | Duty of care                                   | Art. 4   | It is the duty of the family, community, society in general and the government to ensure, with absolute priority, the enforcement of the rights to life, health, food, education, sport, leisure, professional qualification, culture, dignity, respect, freedom, and family and community life 48.   |  |  |  |

continues...

Chart 1. Continuation

| Rights of unborn children                   |   |             |  |  |  |  |
|---|---|-------------|--|--|--|--|
| Document                                    | Theme                                       | Description |  |  |  |  |
| Responsibilities of pregnant women          |   |             |  |  |  |  |
|   |   | Art. 132    | To expose the life or health of others to direct and imminent danger:<br>Penalty – imprisonment, from three months to one year, if the<br>fact does not constitute a more serious crime <sup>54</sup> .  |  |  |  |
| Criminal Code<br>(Decree-Law<br>2,848/1940) | Exposure of<br>unborn children<br>to danger | Art. 136    | Expose to danger the life or health of a person under one's authority, custody or surveillance, for the purpose of education, teaching, treatment or custody, either by depriving them of food or indispensable care, or by subjecting them to excessive or inadequate work, or by abusing means of correction or discipline: Penalty – imprisonment, from two months to one year, or fine <sup>54</sup> . |  |  |  |

## Final considerations

Given the results found, it can be said that the unborn child is the holder of rights guaranteed by Brazilian legislation. In conditions of vulnerability and dependence on care, the unborn child is a human being who requires protection. Thus, the responsibility for ensuring the safety of the unborn child lies with the pregnant woman and the physician, who must provide care to the patient and the conceptus through prenatal care.

In case the syphilitic pregnant woman refuses or neglects the treatment, implying consequences for fetal health, the physician should disregard the maternal decision based on the principle of beneficence in favor of the child. In this sense, given the risk of fetal death, the professional is supported by the ECA, CEM and specific resolution. However, in case of omission in their conduct, they may be legally liable based on the same legal provisions.

Negligent pregnant women may be held accountable for endangering the health of the unborn child, answering civilly and criminally for the conduct.

## References

- 1. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Protocolo clínico e diretrizes terapêuticas para atenção integral às pessoas com infecções sexualmente transmissíveis (IST) [Internet]. Brasília: Ministério da Saúde; 2015 [acesso 11 jan 2023]. Disponível: https://bit.ly/40f7pPb
- 2. Longo D, Fauci A, Kasper D, Hauser S, Jameson J, Loscalzo J. Medicina interna de Harrison. 18ª ed. Porto Alegre: AMGH; 2013.
- 3. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Atenção ao pré-natal de baixo risco [Internet]. Brasília: Ministério da Saúde; 2012 [acesso 11 jan 2023]. Disponível: https://bit.ly/3JnuhGr
- 4. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Manual técnico para diagnóstico da sífilis [Internet]. Brasília: Ministério da Saúde; 2016 [acesso 11 jan 2023]. Disponível: https://bit.ly/3Dt40CS
- 5. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Boletim epidemiológico de sífilis [Internet]. Brasília: Ministério da Saúde; 2020 [acesso 11 jan 2023]. Disponível: https://bit.ly/3jlmdv1
- **6.** Motta IA, Delfino IRS, Santos LV, Morita MO, Gomes RGD, Martins TPS *et al.* Sífilis congênita: por que sua prevalência continua tão alta? Rev Med Minas Gerais [Internet]. 2018 [acesso 11 jan 2023];28(6):45-52. DOI: 10.5935/2238-3182.20180102
- 7. Kliegman RM, Stanton BF, St Geme JW 3rd, Schor NF, Behrman RE. Nelson: tratado de pediatria. 18ª ed. Rio de Janeiro: Elsevier; 2009.
- 8. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Protocolo clínico e diretrizes terapêuticas para prevenção da transmissão vertical do HIV, sífilis e hepatites virais [Internet]. Brasília: Ministério da Saúde; 2022 [acesso 11 jan 2023]. Disponível: https://bit.ly/3Ybd3js

- 9. Campos D Jr, Burns DAR. Tratado de pediatria: Sociedade Brasileira de Pediatria. 3ª ed. Barueri: Manole; 2014.
- 10. Macêdo VC, Lira PIC, Frias PG, Romaguera LMD, Caires SFF, Ximenes RAA. Risk factors for syphilis in women: case-control study. Rev Saúde Pública [Internet]. 2017 [acesso 11 jan 2023];51:78. DOI: 10.11606/s1518-8787.2017051007066
- 11. Costa CV, Santos IAB, Silva JM, Barcelos TF, Guerra HS. Sífilis congênita: repercussões e desafios. ACM Arq Catarin Med [Internet]. 2017 [acesso 11 jan 2023];46(3):194-202. Disponível: https://bit.ly/3l93bZw
- 12. Sousa DMN, Costa CC, Chagas ACMA, Oliveira LL, Oriá MOB, Damasceno AKC. Sífilis congênita: reflexões sobre um agravo sem controle na saúde mãe e filho. Rev Enferm UFPE on line [Internet]. 2014 [acesso 11 jan 2023];8(1):160-5. DOI: 10.5205/reuol.4843-39594-1-SM.0801201426
- 13. Andrade ALMB, Magalhães PVVS, Moraes MM, Tresoldi AT, Pereira RM. Diagnóstico tardio de sífilis congênita: uma realidade na atenção à saúde da mulher e da criança no Brasil. Rev Paul Pediatr [Internet]. 2018 [acesso 11 jan 2023];36(3):376-81. DOI: 10.1590/1984-0462/;2018;36;3;00011
- 14. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Diretrizes para controle da sífilis congênita: manual de bolso [Internet]. 2ª ed. Brasília: Ministério da Saúde; 2006 [acesso 11 jan 2023]. Disponível: https://bit.ly/3HRjAuJ
- **15.** Feitosa JAS, Rocha CHR, Costa FS. Artigo de revisão: sífilis congênita. Rev Med Saúde Brasília [Internet]. 2016 [acesso 11 jan 2023];5(2):286-97. Disponível: https://bit.ly/3Dr7A03
- 16. Sonda EC, Richter FF, Boschetti G, Casasola MP, Krumel CF, Machado CPH. Sífilis congênita: uma revisão da literatura. Rev Epidemiol Controle Infecç [Internet]. 2013 [acesso 11 jan 2023];3(1):28-30. DOI: 10.17058/reci.v3i1.3022
- 17. Tran L. Legal rights and the maternal fetal conflict. SCQ [Internet]. 2004 [acesso 11 jan 2023]. Disponível: https://bit.ly/3kVNipn
- **18.** Fasouliotis SJ, Schenker JG. Maternal-fetal conflict. Eur J Obstet Gynecol Reprod Biol [Internet]. 2000 [acesso 11 jan 2023];89(1):101-7. DOI: 10.1016/S0301-2115(99)00166-9
- 19. Almeida SJAC. Bioética e direitos de personalidade do nascituro. Scientia Iuris [Internet]. 2004 [acesso 11 jan 2023];7-8:87-104. p. 100. DOI: 10.5433/2178-8189.2004v7n0p87
- **20.** Berti SM. Os direitos do nascituro. In: Taitson P, D'Assumpção E, Berti S, Almeida O, editores. Bioética: vida e morte. Belo Horizonte: PUC-Minas; 2008. p. 69-93.
- 21. Townsend SF. Ethics for the pediatrician: obstetric conflict: when fetal and maternal interests are at odds. Pediatr Rev [Internet]. 2012 [acesso 11 jan 2023];32(1):33-6. DOI: 10.1542/pir.33-1-33
- **22.** Conselho Federal de Medicina. Resolução CFM n° 2.217, de 27 de setembro de 2018. Aprova o Código de Ética Médica. Diário Oficial da União [Internet]. Brasília, n° 211, p. 179, 1 nov 2019 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3MbOz3i
- 23. Brasil. Ministério da Saúde. Portaria n° 3.242, de 30 de dezembro de 2011. Dispõe sobre o fluxograma laboratorial da sífilis e a utilização de testes rápidos para triagem da sífilis em situações especiais e apresenta outras recomendações. Diário Oficial da União [Internet]. Brasília, n° 1, p. 50-2, 2 jan 2012 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3Y9VQHu
- **24.** Domingues RMSM, Szwarcwald CL, Souza PRB Jr, Leal MC. Prevalência de sífilis na gestação e testagem pré-natal: Estudo Nascer no Brasil. Rev saúde pública [Internet]. 2014 [acesso 11 jan 2023];48(5):766-74. DOI: 10.1590/S0034-8910.2014048005114
- 25. Domingues RMSM, Leal MC. Incidence of congenital syphilis and factors associated with vertical transmission: data from the Birth in Brazil study. Cad Saúde Pública [Internet]. 2016 [acesso 11 jan 20];32(6):e00082415. DOI: 10.1590/0102-311X00082415
- **26.** Gomez GB, Kamb ML, Newman LM, Mark J, Broutet N, Hawkesd SJ. Untreated maternal syphilis and adverse outcomes of pregnancy: a systematic review and meta-analysis. Bull World Health Organ [Internet]. 2013 [acesso 11 jan 2023];91(3):217-26. DOI: 10.2471/BLT.12.107623
- 27. Ohel I, Levy A, Mazor M, Wiznitzer A, Sheiner E. Refusal of treatment in obstetrics: a maternal-fetal conflict. J Matern Fetal Neonatal Med [Internet]. 2009 [acesso 11 jan 2023];22(7):612-5. DOI: 10.1080/14767050802668698

- 28. Flagler E, Baylis F, Rodgers S. Bioethics for clinicians: 12: ethical dilemmas that arise in the care of pregnant women: rethinking "maternal-fetal conflicts". CMAJ [Internet]. 1997 [Internet]. 1997 [acesso 11 jan 2023]:156(12):1729-32. DOI: 10.1017/CBO9780511545566.017
- 29. Singer PA, Viens AM. The Cambridge textbook of bioethics. 10<sup>a</sup> ed. Cambridge: Cambridge University Press; 2014.
- **30.** Oberman M. Mothers and doctors' orders: unmasking the doctor's fiduciary role in maternal-fetal conflicts. Northwest Univ Law Rev [Internet]. 1999 [acesso 11 jan 2023];94(2):451-502. Disponível: https://bit.ly/3XQhq3P
- 31. Hornstra D. A realistic approach to maternal-fetal conflict. Hastings Cent Rep [Internet]. 1998 [acesso 11 jan 2023];28(5):7-12. DOI: 10.2307/3528225
- 32. Beauchamp TL, Childress JF. Principles of biomedical ethics. New York: Oxford University Press; 1979.
- **33.** Harris LH. Rethinking maternal-fetal conflict: gender and equality in perinatal ethics. Obstet Gynecol [Internet]. 2000 [acesso 11 jan 2023];96(5):786-91. DOI: 10.1016/s0029-7844(00)01021-8
- **34.** Chervenak FA, McCullough LB. The fetus as a patient: an essential ethical concept for maternal-fetal medicine. J Matern Fetal Med [Internet]. 1996 [acesso 11 jan 2023];5(3):115-9. DOI: 10/b8ndsz
- **35.** Pinkerton JV, Finnerty JJ. Resolving the clinical and ethical dilemma involved in fetal-maternal conflicts. Am J Obstet Gynecol [Internet]. 1996 [acesso 11 jan 2023];175(2):289-95. DOI: 10.1016/s0002-9378(96)70137-0
- **36.** Shchyrba MY. Embryo as the patient (the question of determining the emergence of the moment of the right to life legal protection) [Internet]. 2017 [acesso 11 jan 2023]. p. 132. Disponível: https://bit.ly/3HF1nyP
- 37. Oduncu FS, Kimmig R, Hepp H, Emmerich B. Cancer in pregnancy: maternal-fetal conflict. J Cancer Res Clin Oncol [Internet]. 2003 [acesso 11 jan 2023];129 (3):133-46. DOI: 10.1007/s00432-002-0406-6
- **38.** Hollander M, van Dillen J, Lagro-Janssen T, van Leeuwen E, Dujist W, Vandenbussche F. Women refusing standard obstetric care: maternal fetal conflict or doctor-patient conflict? J Pregnancy Child Health [Internet]. 2016 [acesso 11 jan 2023];3:251. Disponível: https://bit.ly/3HlNbdV
- **39.** Dickens BM, Cook RJ. Ethical and legal approaches to 'the fetal patient'. Int J Gynaecol Obstet [Internet]. 2003 [acesso 11 jan 2023];83(1):85-91. DOI: 10.1016/s0020-7292(03)00320-5
- **40.** Brooks H, Sullivan WJ. The importance of patient autonomy at birth. Int J Obstet Anesth [Internet]. 2002 [acesso 11 jan 2023];11(3):196-203. DOI: 10.1054/ijoa.2002.0958
- **41.** Fost N. Maternal-fetal conflicts: ethical and legal considerations. Ann N Y Acad Sci [Internet]. 1989 [acesso 11 jan 2023];562:248-54. DOI: 10.1111/j.1749-6632.1989.tb21022.x
- **42.** Deprest J, Toelen J, Debyser Z, Rodrigues C, Devlieger R, De Catte L *et al*. The fetal patient: ethical aspects of fetal therapy. Facts Views Vis Obgyn [Internet]. 2011 [acesso 11 jan 2023];3(3):221-7. Disponível: https://bit.ly/3Dr8hqb
- **43.** Strong C. Court-ordered treatment in obstetrics: the ethical views and legal framework. Obstet Gynecol [Internet]. 1991 [acesso 11 jan 2023];78(5 Pt 1):861-8. Disponível: https://bit.ly/40fDd6Q
- **44.** Adams SF, Mahowald MB, Gallagher J. Refusal of treatment during pregnancy. Clin Perinatol [Internet]. 2003 [acesso 11 jan 2023];30(1):127-40. DOI: 10.1016/s0095-5108(02)00082-9
- **45.** The American College of Obstetricians and Gynecologists. Committee Opinion No. 664: refusal of medically recommended treatment during pregnancy. Obstet Gynecol [Internet]. 2016 [acesso 31 jan 2023];127(6):e175-82. DOI: 10.1097/AOG.00000000000148
- **46.** Brasil. Constituição da República Federativa do Brasil de 1988. Diário Oficial da União [Internet]. Brasília, p. 1, 5 out 1988 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3Bcb8SS
- **47.** Brasil. Lei n° 10.406, de 10 de janeiro de 2002. Institui o Código Civil. Diário Oficial da União [Internet]. Brasília, p. 1, 11 jan 2002 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3RjBU2z
- **48.** Brasil. Lei n° 8.069, de 13 de julho de 1990. Dispõe sobre o Estatuto da Criança e do Adolescente e dá outras providências. Diário Oficial da União [Internet]. Brasília, p. 13563, 16 jul 1990 [acesso 11 jan 2023]. Disponível: https://bit.ly/3jidOZi

- **49.** Berti SM. O nascituro e o direito à saúde. Revista Brasileira de Estudos Políticos [Internet]. 2009 [acesso 11 jan 2023];99(2):89-208. p. 202-3. Disponível: https://bit.ly/40A6clG
- **50.** Sena IVA. Qualidade da atenção pré-natal na estratégia de Saúde da Família: revisão de literatura [trabalho de conclusão de curso] [Internet]. Lagoa Santa: Universidade Federal de Minas Gerais; 2014 [acesso 11 jan 2023]. Disponível: https://bit.ly/3HmFjJv
- 51. Brasil. Lei n° 13.257, de 8 de março de 2016. Dispõe sobre as políticas públicas para a primeira infância e altera a Lei n° 8.069, de 13 de julho de 1990 (Estatuto da Criança e do Adolescente), o Decreto-Lei n° 3.689, de 3 de outubro de 1941 (Código de Processo Penal), a Consolidação das Leis do Trabalho (CLT), aprovada pelo Decreto-Lei n° 5.452, de 1° de maio de 1943, a Lei n° 11.770, de 9 de setembro de 2008, e a Lei n° 12.662, de 5 de junho de 2012. Diário Oficial da União [Internet]. Brasília, p. 1, 9 mar 2016 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3Jqv7C8
- **52.** Conselho Federal de Medicina. Resolução n° 2.232, de 17 de julho de 2019. Estabelece normas éticas para a recusa terapêutica por pacientes e objeção de consciência na relação médico-paciente. Diário Oficial da União [Internet]. Brasília, n° 179, p. 113, 16 set 2019 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3DsbsOy
- 53. Berti SM. Dano ao feto. Âmbito Jurídico [Internet]. 2006 [acesso 11 jan 2023]. Disponível: https://bit.ly/3XODs78
- **54.** Brasil. Decreto-Lei n° 2.848, de 7 de dezembro de 1940. Código Penal. Diário Oficial da União [Internet]. Brasília, p. 23911, 31 dez 1940 [acesso 11 jan 2023]. Seção 1. Disponível: https://bit.ly/3FpmvYx

Gabriela Rodrigues de Menezes - Undergraduate - gabrielarmenezes@hotmail.com

D 0000-0001-6829-9393

Ailton Marques Rosa Filho - Undergraduate - marquesrosafilhoa@gmail.com

(D) 0000-0002-6018-7802

Ana Paula Dossi de Guimarães e Queiroz - PhD - anaqueiroz@ufgd.edu.br

D 0000-0002-3943-2471

#### Correspondence

Gabriela Rodrigues de Menezes - Rua Olavo Bilac, 48, Cohab Aeroporto CEP 79240-000. Jardim/MS, Brasil.

### Participation of the authors

Ailton Marques Rosa Filho and Gabriela Rodrigues de Menezes contributed with a bibliographic survey, review of the material and writing of the text. Ana Paula Dossi de Guimarães e Queiroz conceived the article, advised the scholars in the bibliographic survey, preparation of the text, review and conclusion of the article.

**Received:** 7.6.2021 **Revised:** 10.18.2022 **Approved:** 1.19.2023

13