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Evaluation of Medical Malpractice Claims in Down Syndrome Birth Cases According to Court of Cassation Decisions: A Descriptive Study

Abdülkadir İZCİ^a, [©] Uğur KAYHAN^a, [©] Zafer LİMAN^b

^aAfyonkarahisar University of Health Sciences, Department of Forensic Medicine, Afyonkarahisar, Türkiye ^bKarabük University Faculty of Medicine, Department of Forensic Medicine, Karabük, Türkiye

ABSTRACT Objective: This study analyses the current decisions of the Court of Cassation regarding medical malpractice claims involving children born with Down syndrome. Material and Methods: A search the using "https://karararama.yargitay.gov.tr", the Court of Cassation decision search site. 21 decisions between January 01, 2022 and December 31, 2024 regarding medical malpractice claims in cases of Down syndrome birth were included in the study. **Results:** In 66.7% (n=14) of the cases, local courts found the physician at fault, whereas in 33.3% (n=7), the physician was justified. In the accepted cases, it was generally stated that the physician violated the obligation to inform. However, the Court of Cassation has been overturning these cases on the grounds of violation of the child's right to life since 2023. Conclusion: Physicians can often be sued for malpractice in cases of Down's syndrome births. The courts and the Court of Cassation used to judge these cases according to the physician's responsibility towards the patient. However, since 2023, the Court of Cassation has started to reject cases related to Down syndrome births on the grounds of "violation of the child"s right to life'. Our study analyses this new approach and highlights the importance of training on the legal responsibilities of obstetricians, particularly the duty to inform.

Keywords: Down syndrome; prenatal diagnoses; malpractice; wrongful life

Down syndrome (trisomy 21) is the presence of 3 copies of chromosome 21 in all or some cells of an individual. Down syndrome is the most common form of trisomy that can progress to live birth. Individuals with Down syndrome have health problems

such as congenital heart disease, auditory and ocular problems, obesity, mental retardation and psychiatric disorders (such as depression, disruptive behaviour disorders, and autism) and require lifelong health and

special education support.²

Correspondence: Abdülkadir İZCİ Afyonkarahisar University of Health Sciences, Department of Forensic Medicine, Afyonkarahisar, Türkiye E-mail: drkadirizci@gmail.com

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Prenatal diagnosis is a medical procedure that is utilised for the purpose of providing families with information regarding the potential risks associated with the birth of children suffering from severe, debilitating diseases, such as Down syndrome. The primary objective of prenatal diagnosis is to facilitate the decision-making process concerning the advisability of continuing or terminating a pregnancy, in accordance with the circumstances of the individual family.3 Screening tests and diagnostic methods carried out in the prenatal period play an important role in the diagnosis of Down syndrome in the prenatal period.⁴ First trimester and 2nd trimester screening tests are available for the detection of Down syndrome. First trimester screening tests are based on a combination of serum free β-human chorionic gonadotrophin [free β-human chorionic gonadotropin (hCG)] and pregnancy associated plasma protein A (pregnancy associated plasma protein-A) level measurement and nuchal translucency measurement on ultrasonography (USG). Conversely, the 2nd trimester screening tests are based on the measurement of alpha-fetoprotein, β-hCG, unconjugated oestrogen, and inhibin A levels in maternal serum. In addition to the identification of major structural abnormalities, 2nd trimester USG screening can also evaluate important minor markers for the detection of aneuploidies (especially trisomy 21).⁵ In recent years, with the discovery that maternal plasma contains sufficient amounts of cell-free DNA (cf- DNA) to detect Down syndrome, there has been a rapid increase in screening for this and other aneuploidies.⁵ Although cf-DNA is the most sensitive and specific screening test for foetal aneuploidies, its ability to give false positive and false negative results has prevented its use as a diagnostic test.⁶ Furthermore, there are more accurate diagnostic tests that involve invasive procedures, such as chorionic villus sampling or amniocentesis.3,7

It is estimated that the incidence of Down syndrome is 1 in 1,000 to 1,100 live births worldwide, with approximately 3,000-5,000 children born each year with this chromosomal disorder. The fact that Down syndrome is such a common chromosomal disorder leads to medical malpractice claims and lawsuits in cases where prenatal diagnosis cannot be

made. Malpractice lawsuits initiated due to fetal malformations continue to increase every year, with an average annual increase of 35.9% in the 2014-2018 period.⁹

In the international literature, legal actions initiated following birth that result in the diagnosis of Down syndrome are designated as wrongful birth and wrongful life lawsuits. 10-12 The concept of wrongful birth is usually defined as a lawsuit brought by the parents of a child who is disabled or affected by a detrimental condition It has been asserted by parents that they were not provided with sufficient information by the physician during the prenatal or pre-pregnancy period. It is further claimed that had they been furnished with the correct diagnosis, they would either not have become pregnant or would have terminated the pregnancy. 12

The concept of wrongful life is a type of action, usually brought on behalf of a disabled child, alleging that the child was born as a result of the parents' misinformation or negligence. In this case, the child claims that if the parents had been properly informed by the physician and would have terminated the pregnancy, the child would not have been born.¹²

In the Türkiye legal system, when a child is born with a disability, families can sue for financial and moral damages on the grounds that the physician failed to diagnose, inform and guide them correctly. Claims are first heard in local courts. The judgments of the local courts are reviewed by the Regional Courts of Appeal (RCA), and the RCA's judgments are reviewed by the Court of Cassation. The RCA and/or the Court of Cassation may overturn or uphold the decisions of the local courts.¹³

In order for a medical intervention to be considered legitimate, there are 3 fundamental conditions that must be fulfilled. Firstly, the patient's informed consent must be obtained. Secondly, the physician must be competent in this matter. Thirdly, the intervention must be deemed necessary in accordance with the data of medical science. Failure to fulfill 1 or more of these conditions may lead to the physician's liability. ^{14,15} In cases pertaining to Down syndrome, medical malpractice claims predominantly pertain to deficiencies in the provision of informed

consent, inadequate examination requests, or erroneous diagnosis and treatment practices. With regard to deficiencies in informed consent, it is essential to provide patients with correct and sufficient information. This information should be provided by the physician themselves, in a way to include all risks and benefits, in a way that is understandable according to the socioeconomic level of the patient, and the patient should be given a reasonable time.¹⁵

This study analyses the current jurisprudence of the Court of Cassation with regard to legal actions initiated on the basis of medical malpractice claims pertaining to Down Syndrome births. The medical and legal evaluation methods employed in these decisions are analysed with a view to elucidating the legal responsibilities of physicians and the current legal processes.

MATERIAL AND METHODS

The keywords "down", "down syndrome" and "trisomy" were searched in "https://karararama.yargitay.gov.tr", the decision search website of the Presidency of the Court of Cassation of the Republic of Türkiye, where the decisions of the Court of Cassation are made available to the public. The screening results were limited to cover the dates between January 1, 2022 and December 31, 2024 according to the decision dates. As a result of the search, a total of 187 decisions were found. Among these decisions, 21 decisions on medical malpractice claims in cases of birth with Down syndrome were included in the study. Except for medical malpractice cases due to Down syndrome birth, decisions on criminal liability, divorce and custody cases, intentional/negligent injury cases were not included in the study. In our study, the decisions of the local and higher courts and the reasons for reversal and confirmation of the higher courts were evaluated.

This study was conducted in accordance with the principles of the Declaration of Helsinki and the approval of the Afyonkarahisar University of Health Sciences Ethics Committee for Non-Interventional Scientific Research dated January 03, 2025 and numbered 2025/1 was received.

RESULTS

As a result of the search, 21 decisions on malpractice claims in cases of birth with Down syndrome were identified. The distribution of decisions by year is shown in Figure 1. In 66.7% (n=14) of the cases the local courts found the physician at fault and decided to accept the case, while in 33.3% (n=7) of the cases the local courts found the physician right and decided to dismiss the case. In all the cases accepted by the local court, the reason given was that the physician had not properly explained to the mother/father the methods that could be used for a definitive diagnosis and the risks of these methods, had not provided sufficient information and had not fulfilled the obligation to provide information.

In the decisions of the Court of Cassation, it was observed that 8 of the 14 decisions accepted by the local court included the decisions of the RCA. In 1 (12.5%) of these decisions, the physician's objections to the decision of the local court were accepted, while in the other 7 (87.5%) decisions, the objections were rejected. The Court of Cassation upheld 14.3% (n=2) of the 14 decisions accepted by the local courts on the grounds that the physicians could not prove that they fulfilled the obligation to inform (Table 1). These 2 decisions are from the year 2022. When 12 decisions accepted by the local courts but reversed by the Court of Cassation are analysed, it is seen that 50% (n=6) of them were reversed on the grounds that the case violated the child's right to life (Table 1). It is observed that the Court of Cassation has reversed

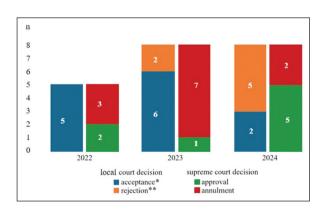


FIGURE 1: Distribution of trial court and Supreme Court judgements by year *approved cases finding the physician at fault **cases rejected by finding the physician right

TABLE 1: Reasoned decisions of the Court of Cassation in cases where the local courts have found the physician at fault

	Court of Cassation Judgment	
Reasons of the Court of	Approval	Annulment n
Cassation judgments	n (%)	(%)
Physician at fault: Violation of the obligation to inform	2 (100)	-
Expert report is required	-	1 (8.3)
Violation of the child's right to life	-	6 (50)
No causal connection*	-	1 (8.3)
No medical malpractice	-	4 (33.3)
Total n (%)	2 (14.3)	12 (85.7)

*There is no causal connection between the negligence and the birth of the plaintiff's minor child with Down syndrome due to the fact that the plaintiff visited other physicians other than the defendant physician during pregnancy and there is no concrete document and information that the patient presented the tests to the defendant physician.

the cases on the grounds of the child's right to life since 2023. Of the 7 cases in which the local courts found the physician right and decided to dismiss the case, 6 (85.7%) were upheld by the Court of Cassation and 1 case was reversed due to procedural errors in the court proceedings.

DISCUSSION

The physician's obligation to enlighten is to enable the patient to freely decide on the medical diagnosis and treatment to be applied by the physician with the information to be provided by the physician. ¹⁶ Firstly, the physician should assess the patient's ability to understand medical information and the consequences of treatment alternatives in order to make an independent and voluntary decision. Secondly, the physician should provide accurate and detailed information appropriate to the patient's cultural and socioeconomic level. Thirdly, the physician should document the discussion with the patient in the medical record.¹⁷ It is reported that informing the patient by establishing correct and effective communication reduces the possibility of encountering medical malpractice lawsuits.¹⁸ An et al. reported that informed consent was not obtained from the patient in 51.8% of the cases in a study including 850 studies on disputes related to prenatal USG.9 Similarly, Terece et al. reported that an informed consent form was obtained in only 19.1% of the cases in which second level USG was performed.¹⁹ In our study, it was demonstrated that

in all of the cases accepted by the local courts, there was a failure to fulfil the obligation to inform by the physician. The main basis of wrongful birth and wrongful life lawsuits is the deficiencies in the physician's obligation to inform. Therefore low informed consent rates in the literature may put physicians in a weak position in lawsuits.¹²

According to the laws of the Republic of Türkiye, it is not obligatory to obtain consent in writing. This issue is addressed in Article 18 of the Regulation on Patient Rights dated August 01, 1998 and numbered 23,420 with the phrase "the patient shall be verbally informed about the medical intervention by the healthcare professional who will perform the medical intervention". However, although verbally informing the patient seems to be sufficient by law, the Court of Cassation has left it to the physician to prove whether the physician has fulfilled the obligation to inform.20 This results in an unconventional scenario where consent for invasive diagnostic procedures is obtained, yet the physician ultimately declines to perform them, citing the patient's lack of consent.21

Obstetricians and gynaecologists are more likely to be involved in malpractice claims than other medical specialties.²² In addition, medical malpractice claims are known to be the highest value claims. This is because obstetric problems, by their very nature, occur at an early age and victims have to live with their disabilities for many years. Children with obstetric injuries often require "expensive, extensive medical care and often require lifelong care and assistance".²³ Obstetric reasons (80.5-85.1%) are the most common reasons for suing obstetricians and gynaecologists.^{24,25} Given the high rate of malpractice lawsuits and the amount of compensation, we believe that obstetricians and gynaecologists should be more vigilant and careful in their diagnosis, treatment and communication with patients, especially in their duty to inform. Down syndrome is also frequently the subject of malpractice claims due to failure to diagnose it in the prenatal period.²⁶

In the prenatal diagnosis of Down syndrome, risk analysis is carried out by screening tests and definitive diagnosis can be made by invasive diagnostic methods such as amniocentesis or chorionic villus sampling.²⁷ At this stage, it is the physician's responsibility to inform the patient by explaining the results of the screening tests, the significance of the results, further diagnostic tests, the benefits, risks, complications and alternatives of the procedure in a manner appropriate to the patient's socioeconomic level.¹⁷ Favre et al. found that appropriate consent was obtained from only 40.3% of pregnant women, and the quality of consent was higher in pregnant women with higher education level and in pregnant women with high risk detected in serum screening tests.²⁸ It is important to remember that clinicians have an equal obligation to provide information to all patients. As with other specialties, CRT physicians should educate their patients according to their level of education and ability to understand.

Lawsuits filed due to the birth of a baby with Down syndrome are recognized in the international literature under the name of wrongful birth lawsuits. 10-12,29 The parents claim that they were not properly informed by the physician during the prenatal or pre-pregnancy period and that if they had been properly informed with the correct diagnosis, they would either not have become pregnant or would have terminated the pregnancy and are seeking compensation for their damages. 12 In Türkiye, these lawsuits are filed as medical malpractice lawsuits. In medical malpractice and wrongful birth cases, deficiencies in the obligation of physicians to provide information are particularly noticeable. 11,12 In our study, in all the cases where the local courts found in favor of the defendant, the reason given was that correct and sufficient information had not been provided.

Wrongful life actions are legal actions based on the claim that a child "would have been better off not being born". In this case, the child, or the mother/father on behalf of the child, claims that "if the physician had provided timely and accurate information, the parents could have chosen to terminate the pregnancy and the child would not have had to live a life with a disability", in other words, the child claims that "it would have been better not to be born than to live a life with a disability". ^{10,11} It is reported that these cases are usually dismissed in many countries,

such as the United Kingdom, France, Italy and most states of the United States. 11,30 The most prominent justification is the principle of the sanctity of life. Many legal systems recognize that life is precious in all circumstances and that a life with a disability is no worse than not being born at all.11 In our study, in the decisions of the Court of Cassation since 2023, by referring to Articles 12-17 of the Constitution of the Republic of Türkiye, "everyone has inviolable, inalienable, unalienable and inalienable fundamental rights and freedoms attached to his personality..." and "everyone has the right to life, to protect and develop his material and spiritual existence...", the Court of Cassation overturned the decisions of the local courts. In addition, the acceptance of wrongful life cases raises concerns that the lives of persons with disabilities are devalued and may lead to social exclusion.¹¹ In our study, the Supreme Court put forward the reasoning that the case essentially violated the personal rights of the plaintiff child, based on the article "recognizing also that discrimination against any person on the basis of disability is a violation of the inherent dignity and value of the human person" in the preamble h of the United Nations Convention on the Rights of Persons with Disabilities. These decisions of the Court of Cassation in recent years stand out as an important change in the Turkish judicial system.

It has been observed that efforts to claim rights for Down syndrome through legal means have increased in recent years.4 In the literature, a study by Kaymakcalan analysed 53 cases between 2009-2021 from a genetic point of view; of these cases, in 28 negligence cases against physicians, 4 were found to be at fault and in 9 the physician was found not to be at fault.4 However, it was noted that the appeal outcomes of other cases were not evaluated. Our study is a continuation of Kaymakcalan's study and is considered meaningful in that it covers all the processes of the cases from a forensic perspective and includes the appeal stages.⁴ In addition, our study found that there has been a significant change in the decisions of the Court of Cassation in recent years. Although it is not explicitly emphasized in the case files, the fact that the cases are rejected with the judgments given from the perspective of the "right to life" is considered as an important result.

CONCLUSION

The physician's duty to inform consists of informing the patient, using appropriate communication methods according to the patient's level of education, explaining the results, benefits, risks and alternatives of the examinations and treatments to be performed and/or already performed, and recording this information. In our study it was observed that 66.7% (n=14) of the cases brought as a result of the birth of a child with Down syndrome were upheld by the local courts on the basis of breaches of the obligation to provide information. This high rate suggests that obstetricians and gynaecologists, who are at high risk of being sued for damages due to prenatal diagnostic errors, should be aware of this issue, especially when evaluating the results of prenatal screening tests and referring for invasive diagnostic tests. In addition, the Court of Cassation's assessment of claims based on the birth of a child with Down syndrome has changed since 2023. The Court of Cassation, which previously assessed the physician's obligations to his patient and considered it a case of medical malpractice, has tended to dismiss the cases since 2023, taking the view that "it is not legally appropriate to file a lawsuit against the child's right to life". How this new approach of the Court of Cassation will continue should be re-evaluated in future studies.

In the context of the new approaches and decisions of the Court of Cassation regarding medical malpractice cases related to Down syndrome, the importance of education regarding the legal responsibility of gynaecologists and obstetricians in these cases, and in particular the duty to inform, is empha-

sized. This education will minimize the medical and legal risks and contribute to the physician's awareness.

Our study has some limitations. Since the study was planned as a retrospective examination of the decisions of the Court of Cassation, some data could not be included in the study since the information contained in the decisions could be accessed. In addition, there are deficiencies in terms of generalisability since there is not enough data in terms of numerical and diversification of data sets.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Abdülkadir İzci, Uğur Kayhan; Design: Abdülkadir İzci, Uğur Kayhan, Zafer Liman; Control/Supervision: Abdülkadir İzci, Uğur Kayhan, Zafer Liman; Data Collection and/or Processing: Abdülkadir İzci, Uğur Kayhan; Analysis and/or Interpretation: Abdülkadir İzci, Uğur Kayhan, Zafer Liman; Literature Review: Abdülkadir İzci, Uğur Kayhan, Zafer Liman; Writing the Article: Abdülkadir İzci, Uğur Kayhan; Critical Review: Uğur Kayhan, Zafer Liman; Materials: Abdülkadir İzci, Uğur Kayhan, Zafer Liman.

REFERENCES

- Global Down Syndrome Foundation [Internet]. FAQ and Facts about Down Syndrome. 2018 The Global Down Syndrome Foundation [Cited: January 5, 2025. Available from: https://www.globaldownsyndrome.org/about-down-syndrome/facts-about-down-syndrome/
- Roizen NJ, Patterson D. Down's syndrome. Lancet. 2003;361(9365):1281-9.
 PMID: 12699967
- Klein RD, Mahoney MJ. Medical legal issues in prenatal diagnosis. Clin Perinatol. 2007;34(2):287-97, vi. PMID: 17572235.
- Kaymakcalan H. Investigation of the lawsuits regarding Down syndrome. Marmara Med J. 2022;35:293-6. https://doi.org/10.5472/marumj.1195921
- Doğan ÖE, Akdöner A. Prenatal Screening and Diagnosis. Turk Klin Biomed-Spec Top. 2022;3:67-77.
- ACOG [Internet]. Current ACOG Guidance. 2025 [Cited: Januart 6, 2025]. Available from: https://www.acog.org/advocacy/policy-priorities/non-invasive-prenatal-testing/current-acog-guidance
- Alfirevic Z, Navaratnam K, Mujezinovic F. Amniocentesis and chorionic villus sampling for prenatal diagnosis. Cochrane Database Syst Rev 2017. https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD003252.pub 2/abstract
- United Nations [Internet]. World Down Syndrome Day. [Cited: January 4, 2025]. Available from: https://www.un.org/en/observances/down-syndromeday
- An P, Ye YJ, Li QX, Liu B, Lian K, Yin JB, et al. Medical disputes in relation to prenatal ultrasound in China. Ultrasound Obstet Gynecol. 2020;56(1):11-4. PMID: 32608569.
- Mor S. The dialectics of wrongful life and wrongful birth claims in Israel: a disability critique. Stud Law Polit Soc. 2014;63:113-46. doi:10.1108/S1059-4337(2014)0000063003
- Frati P, Fineschi V, Di Sanzo M, La Russa R, Scopetti M, Severi FM, et al. Preimplantation and prenatal diagnosis, wrongful birth and wrongful life: a global view of bioethical and legal controversies. Hum Reprod Update. 2017;23(3):338-57. PMID: 28180264.
- Moutos CP, Phelps JY. Wrongful birth and wrongful life lawsuits in obstetrics and gynecology. Am J Obstet Gynecol. 2024;231(6):611-7. PMID: 38782230.
- Özen M. Türk Ceza Muhakemesinde İstinaf [Appeal in Turkish Criminal Procedure]. Ankara Üniversitesi Hukuk Fakültesi Dergisi. 2016;65:2331-88. https://dergipark.org.tr/tr/download/article-file/621684
- 14. Hakeri H. Tıp Hukuku El Kitabı. 24. Baskı. Ankara: Seçkin Yayıncılık; 2021.
- Dokgöz H. Adli Tıp ve Adli Bilimler. Baskı. Ankara: Akad Kitabevi; 2019. p.1-696.
- Çavdar Lokumcu P. Disclosure requirement of a doctor. Marmara University Faculty of Law Journal of Legal Studies. 2016;22:735-64.
- Scherer C. A Woman's choice? The constitutionality of Down Syndrome abortion bans and the breakdown of the doctor-patient relationship. Case W Res

- Rev. 2020;71(2):847. https://scholarlycommons.law.case.edu/caselrev/vol71/iss2/15/
- Boyll P, Kang P, Mahabir R, Bernard RW. Variables that impact medical malpractice claims involving plastic surgeons in the United States. Aesthet Surg J. 2018;38(7):785-92. PMID: 29040404.
- Terece C, Gürpınar K, Büyükatak K, Atacan SÇ, Ağırbaş A, Madazlı R. Evaluation of medical malpractice claims in obstetric ultrasonography: Opinion of The Council of Forensic Medicine in Turkey. J Forensic Leg Med. 2021;84:102257. PMID: 34688159.
- 20. Court of Cassation Decision No: 2020/592, 2020.
- Doğan E, Koca Y, Selçuk MA. Down sendromlu olgularda prenatal aydınlatma yükümlülüğündeki tartışmalar ve maluliyet değerlendirmesine adli tibbi yaklaşım [Discussions in prenatal informed consent and forensic approach to disability assessment in cases with down syndrome]. J For Med. 2023;37(1):26-32. https://dergipark.org.tr/en/download/article-file/2808511
- Painter LM, Biggans KA, Turner CT. Risk management-obstetrics and gynecology perspective. Clin Obstet Gynecol. 2023;66(2):331-41. PMID: 37036733.
- Kassim PNJ, Najid KM. The causes and implications of obstetric malpractice. Int J Basic Appl Sci. 2015;4(3):320-5. doi:10.14419/ijbas.v4i3.4697
- Habek D. Forensic expertise in obstetrics and gynecology-Forensic expert experience. Eur J Obstet Gynecol Reprod Biol. 2021;256:1-5. PMID: 33161209
- Kamijo K, Shibata A, Yamamoto N, Watanabe J, Watari T. Risk factor analysis of medical litigation outcomes in obstetrics and gynecology: a retrospective cohort study of 344 claims in Japan. J Forensic Leg Med.
 Q 0 2 4 ; 1 0 7 : 1 0 2 7 5 2 . https://www.sciencedirect.com/science/article/pii/S1752928X24001148
- Milunsky A. Obstetrics, genetics, and litigation. Acta Obstet Gynecol Scand. 2021;100(6):1097-105. PMID: 33483959.
- Carlson LM, Vora NL. Prenatal diagnosis: screening and diagnostic tools. Obstet Gynecol Clin North Am. 2017;44(2):245-56. PMID: 28499534; PMCID: PMC5548328.
- Favre R, Duchange N, Vayssière C, Kohler M, Bouffard N, Hunsinger MC, et al. How important is consent in maternal serum screening for Down syndrome in France? Information and consent evaluation in maternal serum screening for Down syndrome: a French study. Prenat Diagn. 2007;27(3):197-205. PMID: 17238219.
- Leach MW. The Down syndrome information act: balancing the advances of prenatal testing through public policy. Intellect Dev Disabil. 2016;54(2):84-93. PMID: 27028250.
- Raposo VL. Wrongful birth and wrongful life actions (the experience in Portugal as a continental civil law country). Ital LJ. 2017;3(2):421-50. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3705988