

CHAPTER 93

Bioethical principles and their application against Hepatitis B virus infection

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ABSTRACT

Bioethics has the function of ensuring the well-being of people, guaranteeing and avoiding possible damages that may occur to their interests, and providing the professional and those who are served by him, the right to respect and will, respecting their beliefs and values. Objective: to highlight the bioethical principles and their application against Hepatitis B virus infection in the light of the literature. Methods; This is a review of mixed studies, published on the bases of the National Library of Medicine (PUBMED), Latin American and Caribbean Literature on Health Sciences (LILACS), and Scientific Electronic Library Online (SCIELO), in the chronological period between 2012 to 2022. Results: It was evidenced that chronic HBV infection is the main cause of Liver Cirrhosis and hepatocellular carcinoma and that vaccination is an effective way to change this scenario. The vaccine contemplates the bioethical principle of justice and scientific evidence supports beneficence, however, adverse effects interfere with non-maleficence. However, side effects result in conflicts involving the principle of non-maleficence. These consequences are intensified when they are associated with individual and/or collective factors, which can interfere with the individual's autonomy in adhering to such a prevention measure. Conclusion: The treatment and prevention of Hepatitis B should be widely discussed in association with bioethical principles, developing health actions that can guarantee the individual the principles of autonomy, beneficence, non-maleficence, and justice.

Keywords: Bioethics; Infection; Hepatitis B.

1 INTRODUCTION

The emergence of bioethics occurred at a time when the distance between science and the humanities seemed insurmountable and took place with the aim of overcoming this fact that proved to be

harmful to the future development of the humanity and for the maintenance of conditions in gives population (Zanella, 2018).

It can be understood as a means capable of ethically valuing and legitimizing human actions that may have an irreversible impact on the life events of the population, intending to resolve existing conflicts and moral dilemmas in the relationships and interactions between institutions, teams and environments, especially those related to the health of individuals (Schram, 2017).

Among the principles of bioethics are the principles of beneficence and non-maleficence, linked to actions that are capable of to promote good and avoid evil, the principle of autonomy, considering the patient as an active subject in the process therapeutic, and the principle of justice, related with the equality in treatment between you subjects (Drummond, 2017).

Faced with the problem of Hepatitis B virus (HBV) infection, this fact represents an important problem of public health, since it has already been able to infect approximately 2 billion people worldwide, being that around 350 million people with the disease progressed to Liver Cirrhosis and Hepatocellular Carcinoma, in addition to be responsible for about 1 million deaths per year and due to the complexity of treatment and follow-up, That question he can compromise at questions bioethics required for the case (Trepus, et al., 2014).

For O confrontation of that problem, The Assembly world gives Health adopted The first Strategy Global of Sector of Health on Viral Hepatitis, for the period 2016-2021. The strategy was aimed at eliminating hepatitis as a problem in health public. At the however currently at goals global defined for reduce at new infections per hepatitis viral in 90% and reduce at deaths attributable to hepatitis viral in 65% until 2030 (Hsu, & Chang, 2019).

In Brazil, during the period from 1999 to 2020, they were registered in the Information System of Notifiable Diseases (SINAN) 254,389 confirmed cases of hepatitis B (HB), being 34.2% in the Southeast region, followed by the South regions (31.8%), North (14.7%), Northeast (10.3%) and Central-West (9.0%). In this period, the highest detection rate was observed in 2011 (8.4 cases for 100 thousand population) and The smaller in 2020 (2.9 cases for 100 thousand population). It was evidenced predominance at the genre male (54.8%), age group from 25 to 44 years (49.0% of cases), self-declared brown color (42.7%) and in people who had in between the 5th and The 8th grade incomplete (17.0%). THE chronic form was found in 72.9% (Brazil, 2021).

Currently, vaccination against HBV is the most effective way to prevent infection, so it is used worldwide and facing the association as the principles of bioethics, where an important relationship of the bioethical principle of justice is evidenced, related to the right to access immunobiologicals. However, the adverse effects of the vaccine, arouses conflicts between the bioethical principles of beneficence and non-maleficence, which can intensify when associated with personal factors, relatives and/or community (Sugarman et al. 2017).

In this sense, HBV B infection assumes a relevant public health issue, requiring studies that present up-to-date data on the infection, clinical forms and complications, in order to intensify the actions of prevention and improve therapeutic strategies, associating them with the contemplation of bioethical principles, which must be addressed and insured to individuals (Hsu & Chang, 2019).

In this way, to highlight the bioethical principles and their application against Hepatitis B virus infection in the light of the literature.

2 METHODOLOGY

This is a systematic literature review study, carried out through a bibliographic survey using if data from secondary sources. Systematic review is a research modality, which follows specific protocols and seeks give some logic to a great corpus documentary (Galvão & Ricarte, 2019).

The guiding question adopted for this study was what is the application of the bioethical principles of autonomy, justice, beneficence and no maleficence in front of control of infection fur virus gives Hepatitis B with emphasis on vaccination?

The steps taken to put this review into operation were: 1.choice of the guiding question; 2- selection of studies composed the sample based on the inclusion and exclusion criteria of the research; 3- establishment of information that will be captured and classification of studies; 4- Analytical judgment of the articles included in the review; 5- critical analysis of included articles and discussion of results; 6- report of the review and synthesis of the information acquired in the course of the other steps .

Data collection was carried out from May 1 to 30, 2022 and For the selection of articles, the following were used. following databases: National Library of Medicine (PUBMED), Latin American and Caribbean Literature in Sciences of Health (LILACS) and Scientific electronic library online (SCIELO), using you descriptors/Mesh: hepatitis, infection, bioethics at the period chronological understood in between 2012 to 2022 .

The inclusion criteria used were: available electronically for free, articles published in the Portuguese and English, full text with abstracts available and published in the last 10 years (2012 to 2022). The criteria for exclusion were as follows: articles that did not answer the guiding question of the research and that they were duplicated in the many different bases of data .

After applying the aforementioned criteria, a total of 103 articles were found. After reading the intact From articles were selected 10 studies what answered the question guiding gives search.

Painting 1. Selection From articles included in the study.

1st Search: Association From descriptors	Criterion 01	Criterion 02	Criterion 03	Criterion 04	Criterion n05	TOTAL

hepatitis, infection, bioethics PUBMED 24 articles	Available free19	Language Portuguese English16	year of Publication 2012 -2021 16	exclusion of articles duplicates 13	answer the questionguiding 5	5
Hepatitis, Infection, Bioethics LILACS 24 articles	Available free12	Language Portuguese English12	year of Publication 2012 -2021 12	exclusion ofarticles duplicates 8	Reply The questionguiding two	two
Hepatitis, Infection, Bioethics SCIELO 55 articles	Available free34	Language Portuguese English21	year of Publication 2012 -2021 21	exclusion ofarticles duplicates 9	Reply The questionguiding 3	two
Total General						10 articles

Source: authors.

After search, careful readings of the 10 selected publications were carried out to elaborate the present review. THE analysis From Dice he was carried out in form descriptive, proceeding The categorization From Dice extracted From studies selected in thematic groups, from the identification of variables of interest and key concepts, thus the Results were categorized in a table adjusted for this purpose containing the following items: author, year, journal of publication and title of the research, in order to provide a comparative analysis, so that they would enable The acquisition of answers to problem of study.

The research was not submitted to the local Research Ethics Committee (CEP), as it was a study based on sources. secondary and do not fall within the legislation of CONEP/MS, resolution 466/2012.

3 RESULTS

Table 2 shows the articles included in the sample that answered the guiding question proposed for the study, namely: what is the application of the bioethical principles of autonomy, justice, beneficence and non-maleficence in the face of infection control by the virus of hepatitis B with emphasis on vaccination?

Painting two: Summary From articles included in the sample.

AUTHOR	YEAR	JOURNAL	TITLE
Lessa, S. D. Ç.	2013	Portal education	Childhood vaccination and postnatal adverse eventsvaccination: contribution of bioethics to implantation of policies compensatory at the Brazil
Lessa, S. D. Ç., & Dórea, J G	2013	Magazine bioethics,	bioethics and childhood vaccination in pasta
Lessa, S. D. Ç., & Schramm, F. R.	2015	Science & Health Collective	Individual protection versus collective protection:bioethical analysis of the national program of childhood vaccination in pasta.
Souza de Jesus, A., Rodrigues de Jesus, L., Vieira, VDO, da Silva Sena, EL,Silva in Oliveira Boery, R. N., & Yarid, S.D	2016	Minutes bioethics	Aspects bioethical gives vaccination in pasta in Brazil.
Sugarman, J., Revill, P., Zoulim, F., Yazdanpanah, Y., Janssen, H. L., lim, S. G., & Lewin, S.R	2017	BMJ journals	ethic and search for a Hepatitis B cure
Schramm, F. R.	2017	Science & Health Collective	THE bioethics in protection: one tool for the evaluation of sanitary practices?

Pereira, EL, Brito, R. Ç., & Oak, M. T. M	2018	Annals in Medicine	THE vision bioethics the respect gives to vaccination
Zanella, D. Ç.	2018	Interface-Communication, Health, Education	Humanities and science: a reading from the bioethics in Van Rensselaer
Hsu, H. Y., & Chang, M. H	2019	The Journal of Pediatrics	Hepatitis B virus infection and the progress in the direction eliminate it
Moura, EC, Santos, CRD, atzingen, DAN CV, & Mendonça, THE. RD A	2021	Magazine bioethics	Vaccination in Brazil: reflection bioethics about accessibility.

Source: authors.

The results shown in table 2 show that the 10 studies included in the sample were published in the years 2013 (2), 2015 (1), 2016 (1), 2017 (2), 2018 (2), 2019 (1) and 2021 (1). The studies were published in national and international journals and focused on thematic.

4 DISCUSSION

THE discussion constituted a corpus of study grouping you themes most addressed in the following categories: Epidemiological information of Hepatitis Virus Infection B and Bioethical Aspects applied against Infection by the Virus of Hepatitis B.

I- Information epidemiological gives infection by Virus gives Hepatitis B

It is estimated that approximately two billion individuals had previous contact with HBV and that the infection chronic disease affects approximately 350 million people worldwide, and may develop symptomatically, oligosymptomatic or asymptomatic, being the main cause of Liver Cirrhosis and Hepatocellular Carcinoma (HCC), in addition to in to be responsible 500,000–1,200,000 deaths per year in result in complications caused fur HBV, characterizing an important it's worrying problem of health public at the world (Trepus, et al., 2014).

According to the Ministry of Health (MS) 15% of the Brazilian population has previous contact with HBV, and about 1.5% are chronic carriers, most of whom are unaware of their carrier status, constituting an important factor in the virus spread. The occurrence of the disease may vary from region to region, according to the socio-economic situation. population, significantly affecting those who live in precarious and promiscuous situations (Brasil, 2010; Costa et al. al., 2013).

The epidemiology of this infection can be classified into three categories of endemicity: High, middle and low as the proportion of the population reacting to HBsAg. Data show that the Northern Region of Brazil is configured as the region with the highest prevalence of HBV infection, thus the Amazon is characterized by the region with the highest endemicity of the disease in the country, with the South region presenting the lowest prevalence, and the Central-West regions, North East and Southeast considered regions in prevalence intermediate (Nascimento, et al., 2012; Silva, et al., 2015).

In Brazil, there is an increasing trend of HBV towards the south/north regions, determining three patterns of distribution: high endemicity in the Amazon region, in some municipalities in Espírito Santo and in western Santa Catarina; intermediate endemicity, present in the northeast, midwest and southeast

regions; and low endemicity in the southern region of the country. A study carried out in the northern region, state of Acre, highlights the importance of horizontal transmission, such as dissemination and perpetuation of virus intradomiciliary (Lobato et al. 2006; Brazil, 2018).

The endemicity of HBV infection can be assessed by the prevalence of seropositivity of the markers serological tests, which indicate current or previous contact, and classifies it worldwide into three patterns: low (<1%), intermediate (1 to 5%) and high (>5%) endemicity. In regions with high endemicity, it is evident that perinatal and horizontal transmission are the most common forms of HBV infection, the latter being mainly in the first 5 years of life (Liaw & Chu, 2009 ; world Health Organization, 2009).

Thus, another study carried out in Acre, a region of high endemicity for the disease, showed that the reactivity to HBsAg and total anti-HBc in the population studied, showed a correlation with alcohol abuse, with the range older age, male gender, previous surgeries and the presence of tattoos were exclusively related to the larger reactivity to total anti-HBc (Silva et al., 2017).

The diagnosis of the disease includes examinations in a laboratory environment and rapid tests in order to characterize O infectious agent and your gravity disease and can be accomplished through serological tests that involve reactions immunological, which are able to determine the different phases of the infection classified as acute and chronic, immune or susceptible. The main serological markers related to HBV are Hepatitis B Surface Antigen (HBsAg), Total antibodies against Hepatitis B virus core (Anti-HBc) and Antibody against Hepatitis B Surface Antigen (Anti-HBs) (Brazil, 2009; Hermes Pardini, 2016).

Due to the severity of the problem, early diagnosis of the disease, rapid diagnosis of viral hepatitis and timely referral of infected people for treatment Accurate and early diagnosis of these diseases allows an adequate treatment and directly impacts the quality of life of the individual, being still a powerful instrument in prevention in complications most frequent, as cirrhosis advanced and cancer hepatic (Brazil, 2016).

THE main form prophylactic for the combat the HBV and the vaccination what is it incorporated in the Brazil in nineteen ninety, initially for hyper-endemic regions, such as the Amazon region and from 1998 onwards it became universal at birth, being then incorporated progressively others tracks age up until what in 2016 all The population he was included regardless of age or risk factor, proving to be effective in preventing acute and chronic liver disease and its progression to cirrhosis and/or hepatocarcinoma is largely helpful in decreasing virus transmission. she must be administered at the neonate in the first 12-24 hours after O childbirth, or soon after to be exposed to virus, second the scheme vaccine two more applications are necessary within one month and six months after the first dose (Nunes, 2013; Brasil, 2014; Gomes, 2017).

In those countries what started in form routine The vaccination against O VHB since The decade in 80, you studies show changes in the endemicity profile of infection by this virus (Lok et al., 2016). In Brazil, the same trend is shown in works carried out) in the municipality of Lábrea, which show a reduction in the infection rate, which was 15.3% in 1988 to 3.7% in 1998, as well as in the state of Paraná, where a

study identified the impact of vaccination on reducing of the incidence of HB cases in the region, in the age group from 0 to 9 years, and confirmed the effectiveness of the vaccine as a measure of control of this grievance (Braga, et al., 2005; pudelco, et al., 2014).

It should be noted that children and adolescents represent a high risk group for infection by the HBV, mainly those of lesser purchasing power. In addition to vaccination programs against this infection, investment should be made in activities educational what address The importance in conclude O scheme proposed, in that sense reaffirms The importance in effectively develop immunization programs in schools, as the concentration of this population in the same place and period facilitates follow-up and control, thus ensuring the administration of the complete series of doses required for immunization against illness (Oliveira et al. 2007).

II - Aspects bioethics applied front The Infection by the virus gives Hepatitis B.

In a democratic and plural society, citizens can make independent choices, based on the correlation in between yours rights and duties. In this sense, The autonomy refers The perspective in what each to be human he must to be truly free. However, in our cultural universe, autonomy may not be limited to the patient, especially when treating them. whether of children, adolescents or other people with limited decision-making capacity, whose responsibility extends to others elements of the family, constituting the Autonomy Family (Nunes, 2017).

Sexually Transmitted Infections (STIs), including hepatitis B, are among the health problems that most afflict the world population, deserving the concern of health managers, since the times of ancient history. THE The individual's autonomy can make him susceptible to risky behavioral activities, such as early start of activity sexual intercourse, the promiscuity of partners and the sharing of personal objects, as well as intimate relationships without condoms. In order to intervene in these factors, the citizen must undergo guidance in public, academic and/or public health activities. family, making them aware of susceptible infections, as well as the perception of their responsibility as an "agent transmitter". (NS, 2003).

Thus, evidence-based medicine (EBM) is based on the scientific literature of reference, which is based on the evaluation of different methodologies, resulting in the conscious and judicious use of the best existing evidence in clinical practice, that assists in decision making regarding a person's health care. However, EBM cannot interfere with the autonomy of patient after all the professional treats individuals and not illnesses (Nunes, 2017).

The HBV vaccine contemplates the bioethical principle of justice, associating itself with the doctrinal principles of the SUS (universality, completeness and equity). In addition from that, evidence scientific prove The efficiency gives said vaccine, exercising the bioethical principle of beneficence, however, does not rule out adverse effects, compromising the principle of non-maleficence. These conflicts can be associated with personal, family and/or community factors, which can interfere at autonomy of individual and/or responsible, influencing them The refusal of vaccine (Sugarman et al, 2017).

Compulsory immunization programs are morally justifiable, as vaccination is considered one of the more effective and cost-effective public health policies used in disease control and prevention, however, it is also one of the most controversial and controversial biomedical techniques, and can result in serious individual reactions. So being, becomes essential The Implementation in biopolitics compensatory, associated The reasoning bioethics, aiming promote a public awareness of moral responsibility, collective solidarity and justice social with children affected (Hsu & Chang, 2019; Lessa, 2013).

Per other side, for some authors, countries with laws proxies how much The use in vaccines as character mandatory, as is the case in Brazil, except for people with medical restrictions, may compromise the principle of autonomy, characterized as the respect for the subject's will, since the mandatory vaccination, deprives him of this right (Souza Of Jesus, et al., 2016).

Refusal of the vaccine by community members and/or religious leaders, requires an important approach from the Care Primary in Health (APS), then are trainers in opinion and influence negatively The autonomy gives person and/or responsible, consequently, if observe O increase at prevalence in infection fur HBV, making them susceptible The complications such as Liver Cirrhosis and Hepatocellular Carcinoma. Such situations decrease the patient's quality of life, so how, generate costs lofty to the public health (Hsu & Chang, 2019).

Although the autonomy of children and adolescents is recognized, they constitute a group that deserves attention. after all, they can use this principle in a wrong way, exposing themselves to risky situations that make them susceptible to HBV and others illnesses, in addition addition, some decisions depend of consensus of responsible, O which he can interfere accession gives vaccination (Shepard, et al., 2005).

Another principle of bioethics that may be compromised by the act of mass and/or mandatory vaccination is the of non-maleficence which means avoiding any type of risk, in relation to the safety of vaccine products, such as your correct application and storage, in addition to compromising the principle of justice which aims to resolve issues conflicts related to collective life, by having the imposition of collective benefit as argument for the levies individual (Souza Of Jesus, et al., 2016).

According to Lessa and Dórea (2013), principlist bioethics is not enough or sufficient to analyze the issues ethics associated at actions individual what has impact significant at health collective, as It is O case gives vaccination in pasta in children. conflicts in interests individual and collective, The distribution uneven in scratches versus benefits and The vulnerability of children open ways to the reflection ethics about the current Software of immunization .

Therefore, for bioethicists, the interest of collective health and the protection of the population must prevail over the autonomy of the individual, and it is up to health professionals to comply with the principles of beneficence and non-maleficence, since the cost/benefit of applying the vaccine is at stake, since, on the one hand, the aim is to prevent contagion and, on the other hand, to expose the patient to the side effects, and, from that, bioethics becomes inefficient for the critical analysis in this situation (Pereira, et al., 2018).

Therefore, HBV infection characterizes an important public health problem, which must be widely discussed in association with bioethical principles, developing health actions that can guarantee the autonomy of the individual and/or dependent, so as, exercise the beneficence, non-maleficence and justice (Gaze, et al., 2006).

On the other hand, with regard to access to immunizations, economic factors can be associated with non-compliance of a principle of bioethics which is that of justice, opening space for bioethical discussions on the social vulnerability of the greatest part of the population, who cannot afford these immunizations, when they are not available in the single system in health. (Moura, et al., 2021)

The benefits of vaccines for public health are indisputable, so bioethics can provide reflection and debate capable of understanding the complexity and conflict of the concrete reality so that the country moves towards a vaccination program that is not only ideal in its epidemiological, social, political and economic aspects, but also what be ethically acceptable, to avoid damage and sufferings in principle avoidable (Lessa & Schramm, 2015).

5 CONCLUSION

With this study, the information on the epidemiological and bioethical approach to the infection by the hepatitis B, recognizing that vaccination against HBV contemplates the bioethical principle of justice and, what evidence scientific studies prove the effectiveness of the aforementioned vaccine, exercising the bioethical principle of beneficence, however, the effects collateral, result in conflicts involving the principle of non-maleficence. These consequences are intensified when are associated with individual and/or collective factors, which may interfere with the individual's autonomy in adhering to such a measure of prevention.

Therefore, The infection fur VHB represents a important problem in health public, needing in planning in health what intensify O investment in activities educational at Heads up Primary in Health, covering The discussion of bioethical principles, which can guarantee the autonomy of the individual and/or dependent, as well as exercise the beneficence, non-maleficence and justice.

In view of this, the authors suggest that further studies be carried out covering the topic in question, for greater comprehensiveness of results, as well as studies with other approaches for better dissemination of the theme, mainly among professionals of health.

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