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PHENOMENON OF SIAMESE TWINS
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Резюме. В статье рассматривается феномен сиамских близнецов. В работе описываются причины и факторы риска аномалии, а также диагностика и методы лечения. Представлены результаты опроса, проведенного среди студентов БГМУ. Проведен сравнительный анализ рождаемости сиамских близнецов в мире.

Ключевые слова: сиамские близнецы, сросшиеся близнецы, аномалия, срастание близнецов, студенты-медики.

Abstract. The article discusses the phenomenon of Siamese twins. The paper describes the causes and risk factors of the anomaly, as well as diagnosis and treatment methods. The results of a survey conducted among BSMU students are presented. A comparative analysis of the birth rate of conjoined twins in the world has been carried out.

Keywords: Siamese twins, conjoined twins, anomaly, twin fusion, medical students.

Relevance. Conjoined twins are a rare anomaly, which is registered 1 case per 200 thousand births. This phenomenon attracts attention for its unusual nature, and operations to separate twins are considered complex. In the view of the variability of twin fusion in the womb, the study of Siamese twins is of great interest. The relevance of the research is explained by the growing interest in the issues of bioethics, social integration and human rights.

Aim: to study the nature of the anomaly and ways to correct it; to assess the possibility of Siamese twins' adapting to life in modern society.

Objectives:

1. to find information about Siamese twins;
2. to conduct a survey among medical students about this phenomenon;
3. to analyze the data.

Materials and methods. Analysis of scientific literature and articles of foreign researchers. A survey was also conducted. The students of BSMU aged 17 to 24 years took part in the online survey on a special platform.

Results and their discussion. Siamese (conjoined) twins are twins who are born with their bodies physically connected. This phenomenon is most common in Asia, 1 case per 14,000, but it is also registered in Africa, South America, North America, Australia and Europe – 1 case per 200,000. Moreover, girls are born three times more often than boys (sexual structure 3:1) [3].

The first mention of twins was made on ceramic tableware in Peru around 300 AD. The first recorded separation of Siamese twins occurred in the Byzantine Empire in the 900s. The first recorded successful separation of conjoined twins was performed in 1689 by Johannes Fatio.

Since the middle of the twentieth century, surgeons have begun to perform successful operations to separate twins who share vital organs. One of them is VasilyAverin who is a Belarusian doctor, the head of the department of pediatric surgery at our university.

The medical literature describes two theories of the birth of conjoined twins. The "theory of division" – the fertilized egg does not fully split; it will not result in separate embryos or twins. The "fusion theory" of conjoined twin development suggests that two separate fertilized eggs are formed, but their stem cells fuse together, leading to the conjoined twins. It happens because of excessive or insufficient expression of the Gooseoid gene and organs are doubling [2].

There are some causes and risk factors that can lead to this anomaly such as the first pregnancy before 18 or after 42 years, inflammatory diseases, radiation, toxic substances, drugs, certain medications, cousin marriages.

The main types of connection are the following: 28% of cases are thoracopagus(joined at the chest); 18% of them are thoraco-omphalopagus (connected by thorax and pelvis); 10% of twins are omphalopagus who are connected by a pelvis and 10% of cases are heteropagus (conjoined twins where an incomplete, smaller parasitic twin is attached to a normal host twin); 6% of twins are craniopagus (when the connection happens in the head area) and other types of connection (30%) [1].

According to world practice, the main methods of diagnosis are ultrasound, magnetic resonance imaging and computed tomography.

The main treatment methods are surgical separation and abortion as the way to refuse to give birth to children with defects.

When analyzing the questionnaires, it was revealed that 69% of the respondents are aware of the phenomenon, whereas 21.3% have a poor understanding of conjoined twins, 9.3% are unaware of it (see Fig. 1). 67% of participants agree to have an abortion if they are informed about this anomaly (see Fig. 2).

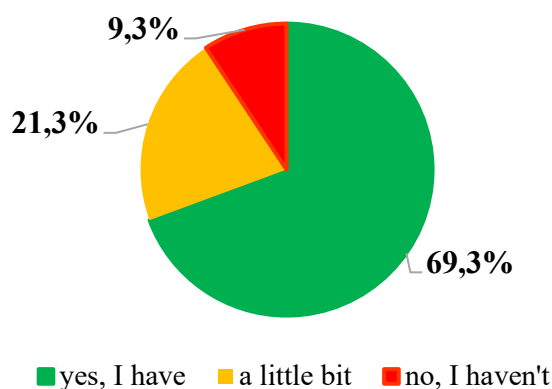


Fig. 1 – Do you have a general understanding?

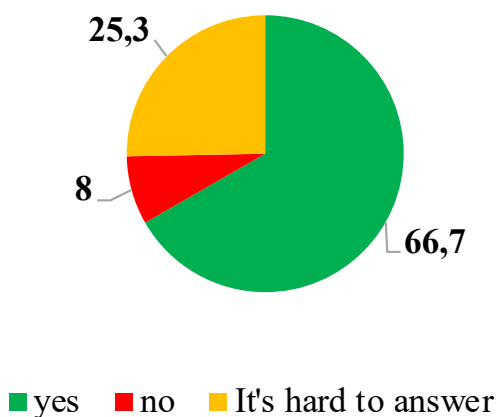


Fig. 2 – Would you agree to have an abortion?

Being parents of Siamese twins and assessing all the risks, only half of the interviewed students would agree to the separation, while 18% would refuse (see Fig. 3).

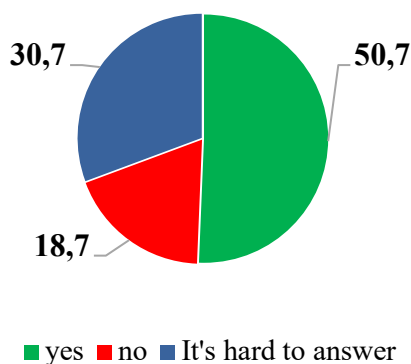


Fig. 3 – Do you agree to the separation of the conjoined twins?

Almost half of the respondents believe that such twins will be able to adapt to life in modern society, however, 32% of them believe that adaptation is impossible (see Fig. 4).

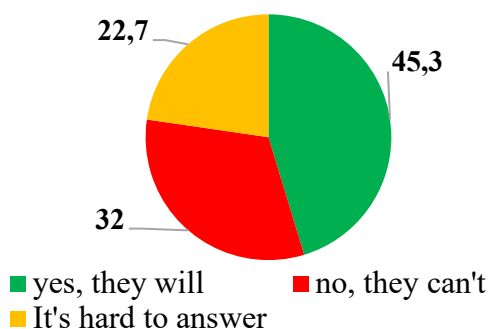


Fig. 4 – Do you think Siamese twins can adapt to life?

68% of medical students would like to participate in an operation to separate conjoined twins (see Fig. 5).

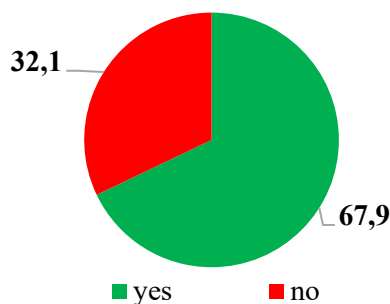


Fig. 5 – Would you like to participate in an operation to separate conjoined twins?

The overwhelming majority (93%) of participants consider it important to support funds that provide assistance to families with disabled children (see Fig. 6).

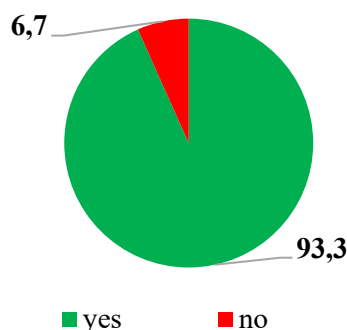


Fig. 6 – Is it important to support funds that provide assistance to families with disabled children?

According to research, the causes for the birth of conjoined twins are either an incompletely separated egg or the fusion of stem cells from separated eggs. Analysis of scientific literature has shown that surgical separation is the main method of correction, and adaptation in society is individual for each pair of twins.

While studying this topic, we found the story of two sisters who are an example of the adaptation of conjoined twins to life in modern society. Abby and Brittany Hensel are dicephalic parapagus twins, meaning they share one body with two separate heads. They have three lungs, two hearts, one liver, two gallbladders, one small intestine, one large intestine, two left kidneys, one right kidney, one pelvis and one set of reproductive organs.

Conclusion. The data demonstrate that conjoined twins are most often born in Asia with a frequency of 1:14,000. There are about 3 times more conjoined female twins than male twins. The survey among medical students revealed that they are not only aware of the phenomenon, but also show interest in studying this topic. The survey also shows the willingness of respondents to have an abortion in case of pregnancy with conjoined twins. In medicine, the topic of conjoined twins occupies an important place, although the analysis of online resources demonstrated insufficient research into the causes of this abnormality.

Literature

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