

Psychobiological Basics for the Formation of Killer Organisms

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Abstract

The neurochemical mechanisms of the formation of killer organisms have been studied. It has been shown that the killers are not born, they are formed when educating take place in socially aggressive conditions under the influence of the following factors: the aggressive social environment, improper nutrition, in the absence of amine acid - tryptophan, appearing serotonin precursor, under the influence of the increased content of sexual hormones, genes of "War" and "Murder" on the background of chromosomes disorder; A new biochemical method has been developed to identify aggressive organisms for their timely treatment with psycho- and pharmacological therapy.

Keywords: Nutrition; Organisms; Aggressive; Neurochemical; Distribution

Introduction

Recently, the conflicts between young people aged 14-16 have become more frequent, which often ends with murder. It is enough to recall the tragedy that occurred in various countries when young people died of multiple wounds. Today, in TV and radio shows pupils' parents, teachers, security officers at schools, police officers, psychologists widely discuss the strengthening their activities and retraining security officers. Nobody gets interested in the reasons inducing the formation of such brutality in young people. Based on our multi-year neurochemical studies, several psychoactive factors in the formation of aggressive and killer organisms have been identified. These factors are: 1. Aggressive social environment; 2. Improper nutrition; 3. Excessive sex hormones in 14-16 years old boys; 4. Genes of "War" and "Murder" on the background of chromosomes disorder.

The first factor of murder: since the Italian neuroscientist Giacomo Pizzolatti has discovered mirror neurons in the brain, by means of which a newborn perceives speech and behavior of people, surrounding

him, it becomes clear that, if the postembryonic development of newborns take place in aggressive social environment, then the formation of his/her culture by emphatic imitation will be introduced in the genetic structure with aggressive behavior code [1,2]. This code will remain in the organism throughout the life and will be revealed in the form of aggressive behavior in the young people.

The second factor of murder is the failure of one of the correlates of aggression and murder serotonin, caused by improper nutrition. It has been established that during 4-6 days, while feeding rats with the meals poor in serotonin predominant amino acid - tryptophan, the amount of serotonin in the organism reduces, resulting in transforming the non killer organisms into killers. During feeding the rats with the meal rich in tryptophan (25-100 mg) the killer rats became non killers and tolerants towards frogs and mice [1-3]. It should be noted that no cases of murder was registered at the meeting with frogs and mice. It is noteworthy that in children aggressive towards animals, as a rule, the amount of serotonin is significantly low. The amount of serotonin is also

significantly low in the monkeys who have lost the function of leaders in their herd. Depending on the above, we should observe the behavior of children who have lost their authority in the group.

On the example of naturally aggressive rats and those becoming aggressive after pilocarpine injection, the quantitative distribution of biologically amines in the brain specific areas of rats was specifically studied to establish a neurochemical correlate of the formation of aggression and murder [4,5], (Table 1).

Brain areas	Control	Natural aggression	Aggression induced by pilocarpine
Midbrain Dopamine, Norepinephrine Serotonin	0.32±0.04 0.48±0.02 0.50±0.05	0.80±0.13 0.68±0.21 0.35±0.06	0.52±0.03 1.20±0.18 0.25±0.02
Hypothalamus Dopamine, Norepinephrine Serotonin	0.58±0.05 1.45±0.08 1.12±0.09	0.95±0.07 2.24±0.13 0.24±0.04	0.73±0.04 2.83±0.02 0.45±0.06
Hippocampus Dopamine, Norepinephrine Serotonin	0.61±0.09 0.75±0.06 0.48±0.04	0.85±0.02 1.12±0.17 0.24±0.04	0.74±0.04 1.18±0.04 0.28±0.06

Table 1: Quantitative distribution of biogenic amines in brain various areas of naturally aggressive rats and those becoming aggressive after pilocarpine injection ($\mu\text{M/g}$).

As seen from the Table 1, serotonin amount in brain specific areas of naturally aggressive rats and those becoming aggressive after pilocarpine injection is reduced approximately by 50-70% [4-7], which indicates that one of the important correlates of the formation of aggressive mood should be considered exactly serotonin. In the next series of our experiments, it was studied how the quantitative distribution of serotonin in the brain specific areas of rats might be changed in the socially aggressive environment (darkness/light (23/1), cold (10-18°C), isolation) during one month. Unfortunately, this fact was perfectly revealed in the children raised in such families, where cold, darkness and social isolation were observed [7-9].

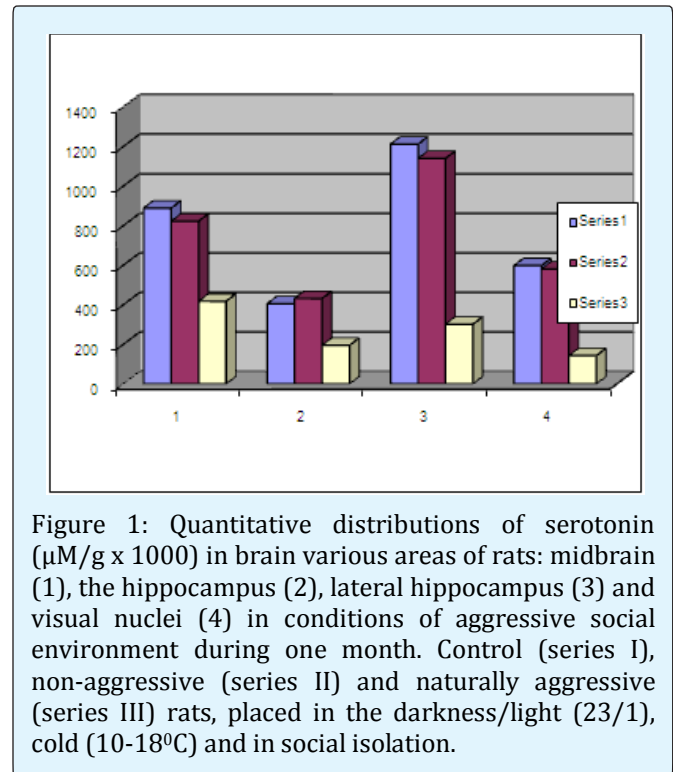


Figure 1: Quantitative distributions of serotonin ($\mu\text{M/g} \times 1000$) in brain various areas of rats: midbrain (1), the hippocampus (2), lateral hippocampus (3) and visual nuclei (4) in conditions of aggressive social environment during one month. Control (series I), non-aggressive (series II) and naturally aggressive (series III) rats, placed in the darkness/light (23/1), cold (10-18°C) and in social isolation.

It is clearly seen from this Figure that during 30 days after the exposition in conditions of darkness, low temperature and isolation, the amount of serotonin significantly reduces, which is especially sharply manifested in the lateral hippocampus (3). It seems that a quantitative lack of serotonin is one of the prerequisites for the formation of aggressive and killer organisms [6-9].

Bearing in mind the above mentioned for prevention of aggression it is desirable to prepare the sandwiches from Dutch and melted cheese rich in amino acids of tryptophan for pupils at school diners. Each 100 grams of Dutch cheese and melted cheese contain respectively 790 and 500 milligrams of amino acid tryptophan - serotonin precursor, which significantly increases the amount of serotonin in the organism of young people and greatly reduces their aggressive behavior [1-8].

In recent years, the cases of murder among the teenagers (especially, 14-16 years old boys) have become quite frequent, which appears to be one of the most pressing problems of social psychology. Since this age appears to be a transitional period, a special attention has drawn to sex hormones, because just at this age the

serious shifts are noted in the quantitative distribution of male hormones [10-12]. For the quantitative reduction of

hormones the rats were castrated and their behavior towards mice and frogs were studied (Figure 2).

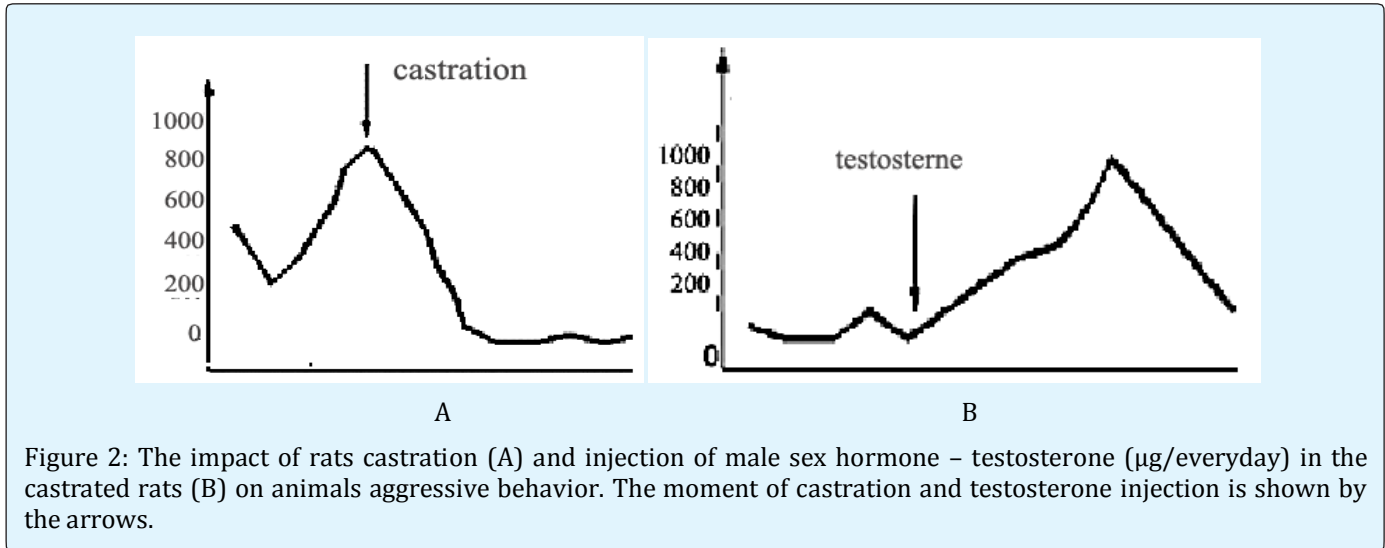


Figure 2: The impact of rats castration (A) and injection of male sex hormone – testosterone ($\mu\text{g}/\text{everyday}$) in the castrated rats (B) on animals aggressive behavior. The moment of castration and testosterone injection is shown by the arrows.

As seen from the Figure 2, after castration the rats did not show any aggression towards mice and frogs, as well as murder cases were not observed. After the injection of male sex hormone - testosterone to castrated rats, the aggressive behavior towards mice and frogs have been again observed [1-12].

For prevention of aggressive behaviors, the rats have undergone to exhaustive swimming in water and after this they were tested on aggression and murder. The most interesting fact was revealed that killer rats became tolerant to frogs and mice and displayed neither aggressive, nor murder behavior [1-13]. Based on the above mentioned, the heads of schools are recommended to enhance physical loadings between the lessons in order to quantitatively reduce and neutralize the biologically active substances, including sex hormones. It is believed that this will undoubtedly establish healthy lifestyle among young people.

Unfortunately, at the level of sex chromosomes of genetic apparatus, the genes of “war” and “murder” have been revealed. Based on the latest data, aggressive people and those having criminal behavior are divided into four groups [13,14]:

1. Young people with Klinefelter's syndrome having XXY sex chromosome. They are characterized by the undevelopment of testicular glands, are very tall, are

distinguished by mental retardation, leading to their easily recruitment for criminal offense.

2. The young people with aberrant XYY or XXYY chromosomes are characterized by mental retardation, high growth, are distinguished by criminal behavior and aggression.
3. People with inherited disorders of the nervous system are distinguished by emotional-ethical degradation, epileptic fluency, dogmatism, schizoidism and disorders due to alcoholism.
4. $\frac{1}{4}$ of the twins developed from one ovum are inclined to commit a crime. Such children should be paid a special attention and be tested for the estimation of their behavior.

Based on the above mentioned, all these data should be deeply studied and taken into account by school psychologists to have an opportunity to discuss the further behavioral reactions of the youth and their prevention.

With the purpose of revealing aggressive organisms, the fractional composition of aggressive and control rats erythrocytes membrane proteins extracted by 0.1% detergent Triton X-100, were carried out electrophoretic study (Figure 3). As seen from Figure 3, a quantitative change in the fractions of aggressive and control membrane proteins has not been revealed, which indicates that the amount of lectin connecting receptors remains unchangeable [15].

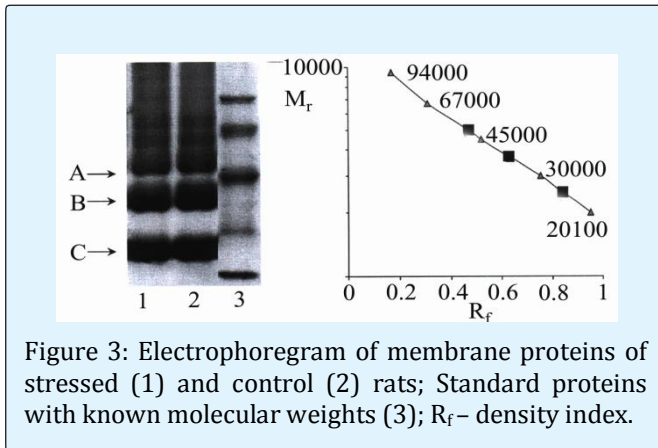


Figure 3: Electrophoregram of membrane proteins of stressed (1) and control (2) rats; Standard proteins with known molecular weights (3); R_f - density index.

To reveal aggressive animals a special method was developed by the use of biologically active plant lectins [3, 5].

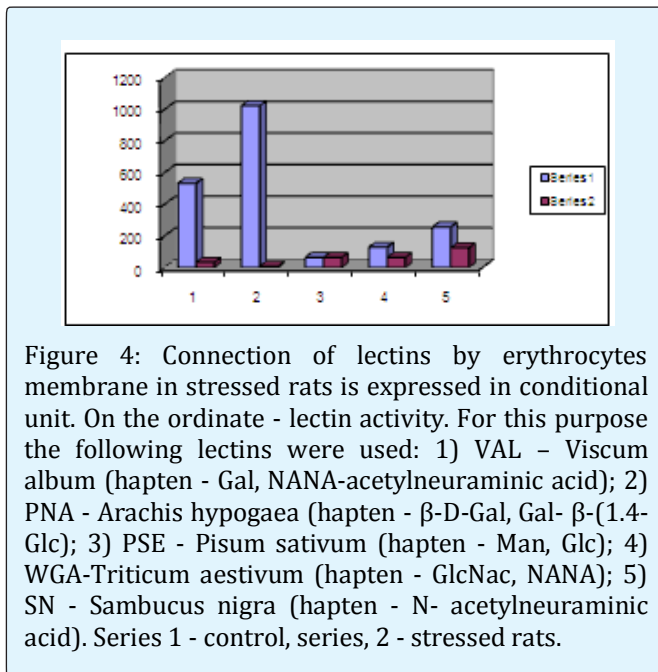


Figure 4: Connection of lectins by erythrocytes membrane in stressed rats is expressed in conditional unit. On the ordinate - lectin activity. For this purpose the following lectins were used: 1) VAL - Viscum album (haptens - Gal, NANA-acetylneuraminic acid); 2) PNA - Arachis hypogaea (haptens - β -D-Gal, Gal- β -(1.4-Glc)); 3) PSE - Pisum sativum (haptens - Man, Glc); 4) WGA-Triticum aestivum (haptens - GlcNac, NANA); 5) SN - Sambucus nigra (haptens - N-acetylneuraminic acid). Series 1 - control, series, 2 - stressed rats.

As seen from Figure 4, Arachis hypogaea (PNA) lectin connection to blood erythrocytes of stressed rats, as compared with other lectins is about 138 times reduced (2). At the same time it has been established that psycho emotional changes are reflected at biochemical level of erythrocyte membrane changes, which is due to the reduction of the amount of Arachis hypogaea (PNA) lectin connecting terminal sugars (β -D-Gal, Gal- β -(1.4-Glc) [2,15,16]. In the perspective it can be used for the identification of aggressive organisms and then for their

therapy. However, such experiments have not been conducted on human blood, but in future we'll have the opportunity to timely reveal the pathologically aggressive organisms by the use of lectins and to conduct their psychotherapeutic and pharmacological treatment.

Conclusion and Recommendation: It was found that during 30 days after the exposition rats in conditions of darkness, low temperature and isolation, the amount of serotonin significantly reduces in brain various areas. Based on this for prevention of aggression it is desirable to prepare the sandwiches from Dutch and melted cheese rich in amino acids of tryptophan - serotonin precursor for pupils at school, which significantly increases the amount of serotonin in the organism of young people and greatly reduces their aggressive behavior. It was shown, that in aggressive behavior of the young people the special role belongs to excessive sexual hormones. Therefore the heads of schools are recommended to enhance physical loadings between the lessons in order to quantitatively reduce and neutralize the biologically active substances, including sex hormones. It is believed that this will undoubtedly establish healthy lifestyle among young people.

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