



Informative signs of the instrumental detection of the hidden information among people with different types of the brain's interhemispheric functional asymmetry

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The article represents the results of the empirical research of the interrelation of the particularities of the brain's interhemispheric functional asymmetry among the participants of the polygraph checks with the particularities of the informative signs while detecting the hidden information.

Key words: *instrumental psycho physiological interrogation using the polygraph, detection of the secret information.*

The contemporary studies of the emotionally significant states using the method of the instrumental psycho physiological interrogation are carried out for personnel selection, screening of the working staff, for the investigation of the crimes, and also in order to explain and theoretically validate the complex processes, which happen in man's mentality and his organism when the phenomenon of «lie» appears and which let reveal the hidden information [2, 3, 6, 7, 8]. The significant influence upon the results of the detection of the emotionally important states, upon informative signs of revealing the hidden information can have the subject's states, his intellectual particularities, character accentuation, and particularities of the motivation and need sphere of the personality and other psychological factors [4, 5, 7]. The works, studying the particularities of the informative signs of the instrumental lie detection among people with different psycho physiological characteristics, first of all with different brain's interhemispheric functional asymmetry, don't practically exist in the contemporary scientific literature.

The goal of the empirical research is the comparative analysis of the informative signs of the instrumental detection of the hidden information that people with different interhemispheric functional asymmetry have.

We set up the hypothesis that the participants of the screening checks with different interhemispheric functional asymmetry, determined by the types of lateral organization (TLO) differ by informative signs, typical for the instrumental detection of the hidden information.

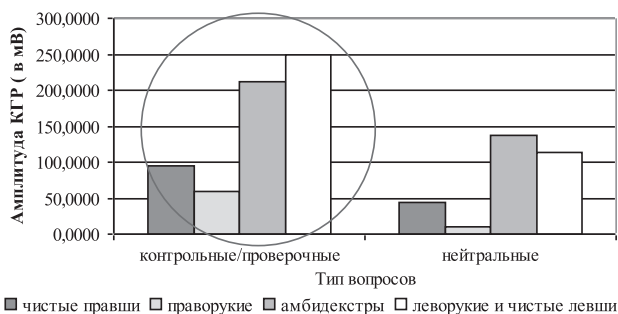
The employees of the different organizations of Rostov-on-Don were the object of our research, the sample consisted of 46 people, who had screening checks at the polygraph, the results of the next check confirmed that they have a risk factor (prediction for taking drugs).



We used the polygraph “Polargue-M” in order to study vegetative reactions to emotionally significant incentives in the process of the screening checks. The study included: pretest conversation, incentive-adaptive test, test of the general control questions (TGCQ), the main part of the screening (verifying test), post test conversation. We registered indices of the physical component as muscular-galvanic reaction (MGR); reactions of the cardiovascular system through the channel of the plethysmogram; thoracic and abdominal breath. We have calculated quantitative metrical assessment of the psycho physiological man’s reactions to control and verifying, and also neutral questions, the integral assessment of the probability of finding out the significant incentive (coefficient of differences of the average weights of Student and their importance) at the basis of the computer processing using programs «Femida».

Sensomotor asymmetry of the respondents was studied with the help of the method of determining TLO with indices «hand-leg-eye-ear» [1]. According to the type of the TLO all the respondents were divided into 4 groups: 1) «absolute» righthanders – respondents with expressed right-hand TLO (33 %); 2) righthanders – respondents with right-hand TLO (39 %); 3) ambidexters (17 %); 4) lefthanders (7 %) and «absolute» lefthanders (4 %) – respondents with left-hand TLO. The reliability of the results of the empirical research is ensured by the application of standard methods of mathematical statistics.

The results of the comparative analysis of the indices of the vegetative reactions while doing the test of the general control questions (TGCQ) of the respondents with the different type of TLO let us conclude that the amplitude of the reactions of the left-hand respondents and ambidexters to the control/verifying questions are statistically higher ($p \leq 0,001$), then the amplitude of the reactions of the right-handers and absolute right-handers (drawing 1).

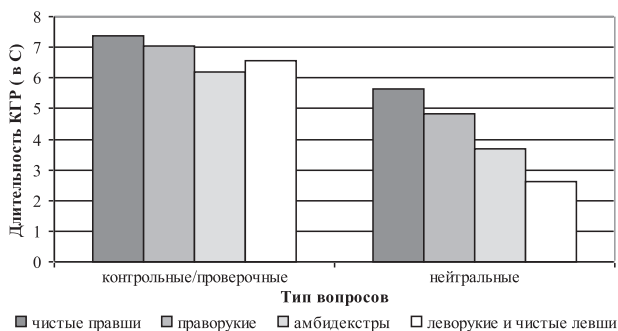


Drawing 1. Difference of the amplitude of MGR of the respondents with different TLO while answering to control/verifying and neutral questions in the process of TGCQ

Thus, MGR to control/verifying questions of the respondents with right-hand profile of lateral organization differ by relatively low amplitude (up to 90 ± 50 mB) and the



big duration ($7,5 \pm 4$ C), respondents with the left-hand profile and ambidexters have high amplitude (up to 250 ± 95 mB) and much shorter ($6 \pm 1,5$ C) (drawing 2).



Drawing 2. Difference of the duration of MGR of the respondents with different TLO while answering to control/verifying and neutral questions in the process of screening

After comparing the indices of the amplitude and duration of the MGR between the groups of the respondents with different type of TLO it was discovered, the typical reaction of the absolute right-handers and righthanders is the significant difference between the amplitude of MGR while answering to control/verifying questions and neutral questions, and ambidexters – difference between the duration of MGR while answering to control/verifying questions and neutral questions, and lefthanders and absolute lefthanders have an important difference of these two criteria, the meanings of which, while answering to control questions are statistically bigger than answering to neutral questions ($p \leq 0,05$).

Comparing the results of the analysis, got in the process of the screening, it was found out, that the absolute right handers have additional signs of the significant reaction which are the indices of the summarized duration 2,5 cycles of the upper and lower breathing ($p \leq 0,01$), which in answers to control and verifying questions are significantly more expressed, then while answering to the neutral questions, and these differences are statistically valid ($p \leq 0,01$).

Besides, the comparative analysis of the results, received while screening, validated the extreme significance of the duration of MGR of the lefthanders and absolute lefthanders, the meanings of which, while answering to control questions are much bigger, then while answering to neutral questions. In our opinion, the universality of this sign let us judge about important reactions while detecting lie with high degree of the probability.

The received results of the research allow us to formulate the following conclusions.

1. It is discovered, that the respondents with the right-hand TLO have a typical particularity of MGR to emotionally significant incentive while detecting the



hidden information, it is the significant increase of the amplitude, the respondents with left-hand – the duration of MGR.

2. It is validated that the respondents with the right-hand TLO амплитуда MGR to emotionally significant incentive is much smaller, a the duration is much bigger, then the respondents with the left-hand TLO and ambidexters.
3. It is established that the respondents with the expressed right-hand TLO (absolute right-handers) have a typical particularity to the emotional incentive, it is the significant reduction of breathing.

The results of our research completely validate our hypothesis and can be used in the professional activity of the polygraphologists while making the expert assessment and polygram analysis, while creating different models of the screening checks, taking into consideration psycho physiological characteristics of the respondents upon the character of the vegetative reactions, while discovering mistakes and difficulties arising in the course of the polygraph checks.

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