MAGNET INFRARED LASER THERAPY IN THE COMPLEX TREATMENT OF INSULIN DEPENDING DIABETES FOR CHILDREN

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The sugar diabetes (SD) is a state of the chronic hyperglycemia, stipulated by the effect on an organism of many exogenous and the internal causes quite often complementary to one another. The spreading of disease - from 2 up to 6 % of the children's population; the annual augmentation of cases of disease (each 15 years the number of ill by SD gets doubled) draws to itself the attention of many contributors, and the difficulties in treatment put before the doctors a problem on perfecting the methods of therapy. In an etiology of disease more close attention takes the role of virus infection contamination, in particular the virus Koksaky B-4 [1], a virus of parotids. Besides that, there is supposed to be an influence of an external environment, the protein of the cow milk, enteroviruses and rotovirus infection contamination [2]. Also there matter the genetic factors in the development of SD. So, according to N.L.Jakusheva's data [3], there are markers of predisposition and the resistance to insulin - dependent SD, localized in locus HLA-DQ. The markers of predisposition to insulin - dependent SD are genotypes DQA1-0301, DQA1-0501, DQB1-0302. In the various populations - Chinese, Finnish, there are different genotypes. In the genesis of SD the major value is attached to the immune mechanisms: the effect by cytotoxic T-lymphocytes, K- and NK- cells. It is considered, that the lymphocytes become responsive to antigens of B- Cells, migrate in pancreas and directly or selectively damage its incretory part. The special role is attached to cytotoxic activity of CD-8, to cytokins – interlekin-1, developed by T-lymphocytes and being as the factor of necrosis of a tumour a [1]. Except of that, a major significance has an autoimmune component of the immune-pathogeny of insulin - dependent SD [4,5,6]. Now a main method of treatment is the replaceable insulin therapy, capable to maintain the close to physiological relations of a level of glycemia. However, the pharmaco-kinetics of the modern drugs of insulin, differs from the kinetics of endogenic insulin. In this connection, it is not possible some times to prevent the development of vascular complications and to maintain on the certain level the contents of insulin in blood. The special difficulties consist in the selection of an adequate doses of insulin. Now they prefer the intensified schema, including multiple injections of insulin on the background of the basic procedure. There are used also the automatic systems "Biostator", carry batches of insulin (pomp) [7]. In the connection with all above-stated, the purpose of the work was the perfecting a procedure of treatment with the inclusion in the complex the magnet infrared laser therapy. There were 55 children with IDSD in the age of from 2 till 15 years under the. The girls were 22, the boys were 33. The program of survey of children switched on the definition of a level of glycemia within one day, the research of the immune status by tests of the 1st and 2nd levels after R.V. Petrov and the definition by an immune-enzyme method of the contents of C-Peptide, loose insulin, antibodies to insulin and antibodies to Langergans' cells in pancreas (sets USA). Alongside, there were researched the antibodies to CMV (Ig M, Ig G, common and Ig M, Ig G to pre-early proteins to CMV) (the corporation " The Vector best ", Novossibirsk).

All the ill were separated into 3 groups: 1st - the stage of compensation - 8 persons, 2nd stage of sub-compensation - 32 persons, 3rd stage of de-compensation - 15 persons. The period of illness up to 1 year - for 22 children, from 1 till 3 years – 22 children, and more than one year - 11 children. Out of 41 children, inspected on antibodies to CMV. There were detected for 32 children the high level of Ig G and for the line of children - Ig M, for 9

- the lowest level or its absence. To all the children, on a background of basic insulin therapy, there was carried out the magnet infrared laser treatment by apparatuses - "VITYAS" or "RIKTA", on the procedure developed by us and including preliminary scanning of pancreas and its sectoring on the front abdominal wall.

The check group had 30 children, who on age, sex and the duration of illness corresponded to experienced group. The analysis of influence the magnet infrared laser therapy on a level of glycemia has shown, that the peak of the efficiency was seen after the second course of treatment for children in the stage of decompensation. There was an improvement also on the stage of subcompensation, but in the greater degree after the first course of treatment (the course of treatment - 10 sessions). The minimum effect was seen for the children on the stage of compensation. We managed to reduce the first dose of insulin by the end of treatment on 1,5 - 4 points. Comparing the indexes of carbohydrate metabolism for children of check and experienced group it is possible to mark, that for the children receiving the complex of treatment MIL - therapy on the stage of subcompensation and decompensation the level of glycemia considerably drops in comparison with the initial, as comparing to the check group where the glycemia at the check-out does not change. The immunological pattern was characterized by the depression of T-suppressed link of the immune defense, and the availability of increased content of T-halpers and the high index of the ratio of Tx/Tc on the background of the depression of the suppressed link testified to availability the auto-immune component in the genesis of IDSD. The most expressed these modifications were for the children with decompensation of SD and with the duration of disease more than 1 year. On a background of MIL-therapy the contents of T-lymphocytes was enlarged by 20-70 % and the contents of T-suppressors, thus, the optimal positive detrusions took place for the children with the compensation of SD.

It is necessary to mark that under the influence of the magnet infrared laser therapy was enlarged the contents of C-Peptide (with 0,507+-0,24 up to 2,062+-1,8) and of insulin (with 3,81+-0,8 up to 11,17 +-5,07) in the greater degree for the children in the stage of compensation, that testified to stimulation the production of endogenic insulin. It shows the possibility of "resuscitation" the insulin apparatus with the help of MIL-therapy. Thus, MIL-therapy renders the positive influence on the level of morning glycemia for children with SD, especially on the stage of decompensation and promotes the drop of common dose of an insulin therapy. It is the most effective for the children with small experience of disease and for the children with minimum autoimmune manifestations of the disease. The efficiency of the given method speaks about the activity of the insulin producing apparatus of pancreas, what is confirmed by an augmentation of the production of C-Peptide and insulin.

References

1. Zhuk E.A. The first time detected IDSD from the position of an immunology. // The Immunology. - #2, 1997, pp.16-18.
2. Knip M. \Exs-Klin-Endokrinol.-Diabetes-1999.
3. Jakusheva L.M. Genotypes HLA DQ in predisposition and resistance to IDSD. // The thesis of bachelor’s dissertation. M., 1995.
4. De-Filippo G. / Acta-Diabetol., 1997, Dec.
5. Ellis T.M. / Diabetes, 1998, Apr.
6. Kulmala P. / Diabetes, 2000, Jan.
7. Zaborovskaja Z.V. The Philosophy of IDSD-therapy // Medical news - #8, 1999, pp.25-29.

THE MAGNET INFRARED LASER THERAPY OF URACRASIA IN CHILDREN

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The uracrasia is the consensual emiction in sleep. It was described yet in the Avitsenna's book " The Canon of the medical science ", and already then he indicated that the emiction quite often descends during the deep sleep. Under the data of the different writers, the frequency of disease for children oscillates from 2,2 up to 38 % depending on age. The children who are suffering affliction by uracrasia, socially and psychologically disadaptive in the environment. They often develop a stressed personality, their capacity to socializing in children's collectives is reduced. They often develop different coinestopathies. The uracrasia promotes the development of the conflict situations in the families; 61 % of the parents thus consider the night incontinence of urine as a severe problem. And in these 1/3 of the families the parents resort to punishment of the child as to the form of the termination of uracrasia, that aggravates its flow.

The majority of the explorers allocates the relevant role to vegetative disturbances in the genesis of uracrasia. According to the judgement of A.M.Wein, the uracrasia falls into the vegetative parasomnias [1]. The definite role in the originating of uracrasia is played by the neurosis [2]. It is considered that psycho-trauma produces the distress of normal activity of a cortex of large hemispheres of the brain [3]. Quite often this dysfunction is expressed not so brightly, and in this connection, alternations of "dry" and "wet" nights is characteristic for such patients. Many writers indicate an ancestral genesis of disease. So, S.P.Petrovsky considers, that this is "the recessive monohybrid inheritable illness", in the basis of which lie the anomalies of development of an innervation of the urinary bladder [4]. As the relevant factor contributing to originating of the uracrasia some explorers consider the dysfunction of secretion the biologically active materials, which are influential on the urinary bladder (serotonin, Histaminum, prostoglucinum, and, the most important, Vasopressinum) [5,6].

The uracrasia in the modern classification is partitioned on the level and type of pathology of the nervous system [7,8]. Thus, there was allocated the pathology of spinal centers of the emiction, which shows by neurogenical dysfunction of the urinary bladder and can be by hypo- and hyper reflective type. A.V.Papayan has offered to introduce to the operational classification the specifications. He explicitly has sectioned the neurosis-like uracrasia on the components: pathology of a night dream; residual - organic failure of cerebral centers of the regulation of an emiction; neuro-endocrine dysfunction of the pituitary body with the change of circadian rhythm of Vasopressinum [9].

In the research we adhered to the A.V.Papayan's classification.

The treatment of uracrasia represents an enough composite problem requiring the comprehensive approach [10,11,12]. It should be directed on the development and recovery of the lost reflex on the arousing at a desire on an emiction, on stimulation of exchange processes in the nervous tissue and acceleration the maturing levels of regulation of an emiction, and on correction of the neurotic distresses arising during disease. The different kinds of the treatment here are used, including physical methods [13], electrodream [14], ultrasonic sound on the area of urinary bladder, the electrophoresis with Euphyllinum [15]. Within the last time they use the drug of Adiuretinum-SD, representing a synthetic clone of the natural Hormonum of neurohypophysis - Vasopressinum [5,16,17]. The methods of reflexotherapy are used also, as the local effect on the reflex part of the skin in zones of biologically active points allows to receive general sectional and local reactions of an organism rendering the adjusting and normalizing operating on the adaptive, the trophic and the exchange processes

[18,19]. It is shown also, that it restores the formation of biologically active materials: endorfinums, encefalinums, Histaminums and glucocorticoids [20,21].

The magnet infrared laser therapy at the treatment of uracrasia is studied insufficiently. In this connection, the purpose of the research also was an estimation of efficiency of the given method.

There were used in the program of the examination of ill the following: the common - clinical methods of testing, bulk analysis of urine, sowing of urine on flora, research of urine after Zimnitsky , ultrasonic investigation of nephroses with definition of the condition of the peripheral hemodynamics in renal arteries (apparatus ALOKA-2000, Japan). There was conducted the research of the urinary dynamics of the lower urinary paths: urine flow measurement, retrograde cystic measurement (urine flow measurement advice of the "Advance" Corporation, USA), EEG.

There were 150 children under the observation. They were 98 boys, 52 girls in the age of from 14 till 15 years. With primary uracrasia there were 124 children, with secondary - 26. With a high-degree - 100, average - 35, mild - 15.

There was detected at the clinical inspection of children with the primary uracrasia the hyperexcitability for 70,1 %, restless dream with dreaming (13,7 %) and without dreaming (45,1 %). The deep pathological dream is marked for 87,1% of children, shivering and pavor for 16,9 %, difficulty of falling asleep and arousing for 28,3 %. The flow of the disease was characterized by monotonicity, showing nonperishable incontinence of urine from the birth 5-7 times per week 1 and more time for the night. For 23 children the uracrasia was combined with a syndrome of an imperative incontinence of urine in daytime. The majority of children had good and perfect marks at school (77 %), 52 % expressed the disturbing concern about the disease and showed the interest and desire to get rid of it.

For the children with secondary uracrasia the night incontinence has arisen on the background of full health and developed slowly, i.e. the increase of "wet" nights up to a maximum descended step-by-step. The uracrasia for these children wore oscillating nature. For more than half of the children the disease was advanced after the psychic-traumatizing situations.

Under the data of an electroencephalogram the background activity of EEG at the realization of functional assays was characterized as pathological for 84 % of the patients, thus, it is more often took place for ill with primary uracrasia - 90 of %, less often - at secondary, for 5 7,7 %. At the considerably expressed changes of EEG we watched the decrease in a level of bio-electric activity, predominance of the record of low - peak slow waves. The data of change indicated the harsh violations of an electrogenesis. That, in opinion of a number of the writers, is connected to disability of cortical-subcortical mechanisms to regulate not only the conforming rhythmicity of injured cortical neurons, but also subcortical cerebral structures [22]. Thus, the degree of the difficulty of disease not always corresponded to the difficulty of changes on EEG. As a rule, the focal pathophysiological changes on EEG for children were localized in the area of center - top - temple. For the boys it was localized in the left-hand hemisphere, for the girls - in the right hemisphere of a brain.

In the treatment of children we were holding onto the conventional approach (53,98,104) with the introducing in the scheme the application of the magnet infrared laser therapy on biologically active points. The treatment was differentiated depending on the form of disease and the age of the child. As the hygienic measures we recommended to avoid excessively full supper, the limitation of gassed liquids and tonics at the evening time. According to our recommendations the ill conducted their dream on the rigid bed, that promoted the reduction of the depth of dream.

We designed the following scheme of LLLT - THERAPY to the treatment of the uracrasia:

The lumbosacral zone, biologically active points (BAP) on the channel of the urinary bladder are subjects to the following irradiation: 23 (VII) – shen-shu, 26 (YII) guan-uan-shu,

28 (YII) – pan-guan-shu, symmetrically from both sides with pulse repetition rate -1000 Hz for 1-1,5 minutes. Front-medium channel is the subject to the following irradiation: 4 (XIV) – guan-uan, 6 (XIV) – zi-hai, 2 (VT) – tszyan-gu, 4 (II) – he-gu. The last two BAP are symmetrically from both sides with a pulse repetition rate 1000 Hz and the exposition for 1 minute. Also, there were used the auricular BAP -28 (point of a brain), 55-shen-men and 92 (urinary bladder) with the frequency of the following impulse 5000 Hz and with an exposition time of 20-30 seconds on each point. The base acupuncture prescription was applied differently, depending on an established type of the neuroginic dysfunction of urinary bladder (NDUB). Thus, at the hyperreflective type of NDUB there was applied the braking mode with an exposition up to 1,5 min. At the hyporeflective type of NDUB the challenging mode was used with the frequency of effect 5000 Hz and with an exposition of 30 sec.

The analysis of the efficiency of the conducted therapy was done by following points (97,140,231):

The convalescence was considered after the full discontinuance of uracrasia from the age of 6 months. Till the age of 5 years, nonperishable improvement - considerable reduction of frequency (not less than in 2 times); the temporary improvement – the reduction of frequency of "wet" nights less than in 2 times with possible subsequent peaking during the observed term; without the effect - at the preservation of an uracrasia at a former level. The effect from the treatment was considered good for children with convalescence and nonperishable improvement, unsatisfactory - for the children without the effect and with the temporary improvement. General good effect we stated for 79 % of children with the high-difficulty form; 82,7 % - with the average and for all ill with the mild form of the disease. The checking of the obtained data with the available in the literature has shown, that the general positive effect from LLLT approximately in 3-4 times surpasses the spontaneous treatment, in 2 times exceeds the placebo - effect, and on 25-35% exceeds the efficiency of classic reflexotherapy. The convalescence more often is watched for the children of 11-14 years (78 % of cases), for over 14 years (54 %). The general good effect of the treatment was watched for ill both with primary, and with the secondary uracrasia, but it was a little bit higher for the children with secondary uracrasia -82,2 % and 87,5 %. The convalescence was registered for 62,1 % and 65 % of children. At the differentiated approach to the therapy of uracrasia for children with the different type of NDUB the convalescence came for 75 %, and the general good effect of the treatment was watched for 89,8 % of children. Thus, the technique, founded on the differentiated principle of treatment allowed to achieve the higher results. For 29 children with the high-difficulty form of uracrasia we have used the complex treatment, included the combined application of LLLT and the drug of Adiuretinum-SD. It has allowed to achieve the even greater efficiency in treatment. As a whole, the general positive effect from the complex therapy we watched for 94 % of children, that on 5 % is higher, than only at mono-therapy by the apparatus MILTA. It is necessary once again to point out, that there were the children with the extremely high-difficulty form of the disease.

Thus, the LLLT- can be considered as the main method of the treatment of uracrasia for the children. The personal approach depending on a type of NDUB allows to achieve the best results in the therapy of the given disease. The mechanism of operating of the method was realized through the stimulation or inhibition of the spinal centers, which regulate the act of an emiction and through the reacting of back departments of hypothalamus. By the indication to the usage of complex treatment of uracrasia, which includes the combination of LLLT and the drug of Adiuretin-SD is the high-difficulty forms of the disease, resistant to mono-therapy. Here the efficiency of treatment reaches 94,1 %.

The literature:

1. Buyanov M.I. An incontience of feces and urine //- M., Medicine -1985- p. 184.
2. Golbin A.Z. The pathological dream for children. L., Medicine, Leningrad's section, 1979, p. 248.

3. Wein A.M., Heht K. The dream of the person. Physiology and pathology - M: 1989- p. 270.
4. Petrovsky S.G. A heredity and enuresis nocturna // The Soviet Psychoneurology, 1934, № 1, pp. 10-17.
5. Peterkova V.L., Fofanova O.V. The researches according to the efficiency and safety of application of Desmopressin for the children with a primary night uracrasia. -M., 1996, p. 20.
6. Bernasconi S., Monty G. The use of DDAVPC desmopressin in primarynocturnal enuresis // Minerva Pediatr. - 1982 - Vol. 34, #3, p. 131-134.
7. Papayan A.V., Savenkova N.D. The clinical nephrology of children's age – S.-Petersburg: Sotis, - 1996.
8. Papayan A.V., Marushkin D.V. The night incontience of urine for children. Problems of an etiology, clinic, diagnostic and treatment. - Volgograd, 1996, p. 18.
9. Papayan A.V. The uracrasia for children. – S.-Petersburg., Foliant, 1998, p. 88.
10. Babich E.H. The reflexotherapy in the complex treatment of uracrasia. The thesis of the MD candidate of sciences dissertation. Kiev, 1990 – p. 20.
11. Buyanov M.I., Drapkin B.Z.. The clinic, limitations and principles of the treatment of neurotic and neurosis-like uracrasia and stammering both for children and adolescents. // Neurosis and disturbance of the nature for children and adolescents. - M.: 1973, pp. 45-67.
12. Krupnova M.S. The rehabilitation of children who are suffering affliction by uracrasia. // The Pediatrics, 1987, #8, pp. 101-102.
13. Gurlenya A.M., Bagel G.E. The physiotherapy and resortology of nervous illnesses. - Minsk, 1989 – p. 397.
14. Troshin V.N., Radayeva T.M., Khaletskaya O.V., Mironova E.I., Kapelush Z.I. The epileptic version of uracrasia for children. // The pediatrics, 1994 - #7 – pp. 35-39.
15. Vishnevsky E.L. The diagnostic and treatment of neurogenic dysfunction of urinary bladder for children // The pediatrics - 1997 - #3 – pp. 42-44.
16. The new method of treatment of night uracrasia by a drug Adiuretin-SD. The methodical guidelines // Under edition of Studenikin M.Y. - M, 1997, p. 8.
17. Berg J. Child psychiatry and enuresis // Birt. J. Psychiatry - 1981-139 p. 247-248.
18. Turbin M.U. The pathophysiological substantiation of the reflexotherapy for children // The problems of preservation the motherhood and childhood. -1990-V. 35, #10, pp. 53-56.
19. Tykochinskaya E.D. The fundamentals of the needle-reflex-therapy. - M., Medicine, 1979, p. 340.
20. Yarotskaya E.P. The reflex-therapy of diseases of an internals. - X.: Delta, 1994-p.160.
21. The endorfins. / Under edition of E.Kost, 1981.
22. Blagosklonova N.K., Novikova L.A. The children clinical electric-encelography. M., Medicine –1994 - p.203.