PRIMARY SKIN CARE, PART (I)

POSSIBLE CONTROL OF URTICARIAL DERMATITIS (URTICARIA)
AND SKIN ITCHING BY THE METHOD OF ELECTRICAL STIMULATIONS
THROUGH THE ACUPUNCTURE NEEDLES.

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Key words

Naicatani's Ryodoten, the highest electrical conducting points, the original Chinese acupuncture points, pressure points for massage, tenderness points, McBurney's point, Lanz's point, Kummel's point, Boa's point, Ewald's point, Onodera's point, body Ryodoten, ear Ryodoten, urticarial dermatitis (urticaria), skin itching, micro ear needles, body needles, 70% ethanol hibitane, sterilizations and hands washing, well sterilized needles, skin surface sterilizations, well sterilized surgical gloves, implantations of micro ear needle, insertions of body needle into cutaneous, subcutaneous and muscle layers, repeated electrical stimulations, skin biopsies, lymphocytes histiocytes, mast cells, edema of reticular dermis, dilated blood vessels, telangiectasis, bundles of collagen, weak staining ability of collagen fibers, itching tract, a substance-like, anti-urticarial dermatitis (anti-inflammation) and anti-skin itching, nerogenic control of urticarial dermatitis and skin itching, life core energy of DNA

Abstract

The remarkable increase of serum amino acids (Taurine (1.3 to 4.6 μ moles/100ml), Aspartic acid (0.5 to 4.5 μ moles/100ml), Threonine (1.5 to 4.6 μ moles/100ml), Serine (2.4 to 6.5 μ moles/100ml), Glutamine (3.3 to 6.6 μ moles/100ml), Glycine (2.2 to 6.8 μ moles/100ml), Alanine (3.5 to 9.6 μ moles/100ml), Valine (1.6 to 6.1 μ moles/100ml), and Tyrosine (0.7 to 3.4 μ moles/100ml), the decrease of electricity at Ryodoten (from 167 to 78 μ A), and diminish of inflammatory cell infiltrations (lymphocytes, histiocytes, mast cells) could be observed at the period of twenty time electrical stimulations. These increased or decreased values were significantly different from the initial values and the non-stimulated control (P<0.001 & 0.001<P<0.01).

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Therefore, these repeated electrical stimulations through the acupuncture needles on both body and ear Ryodoten could be useful for the control of urticarial dermatitis and skin itching.

**Introduction**

In the past for several years, many workers used the method of body and ear needling for the treatments of pain and some diseases with or without electricity through the original Chinese acupuncture points (1,2,3). Most of these workers followed the old traditional Chinese acupuncturing methods and the hypothesis known for thousand years (4,5). This acupuncturing method was so effective for some diseases and was also very popular among many patients.

However, the mechanisms of relief of pain and the recovery of diseases were unable to prove scientifically for sometimes.

During the past and present time, there were quite a few workers concerned on skin electrical conducting points and the electrical stimulations (6,7,8,9). However, they did not describe the clinical usefulness of these skin higher electrical conducting or permeable points concerned to various kinds of disease and human disorder.

In the year 1950, Nakatani described the skin higher electrical conducting points of both ventral and dorsal surface of the body which corresponded to various diseases and their usefulness (10). He also cited that all these skin higher electrical conducting or permeable points were at the nearest sides of the original Chinese acupuncture point known for thousand years. He termed these points as “RYODOTEN” (good electrical conducting points) (11). Recently these Ryodoten became very popular among many doctors and the electrical stimulations were performed for pain and various diseases(12,13).

However, the possible control of urticarial dermatitis and skin itching by the method of electrical stimulations through the acupuncture needles on both body and ear Ryodoten did not appear in the literatures. Here, we are going to describe our few works on urticarial dermatitis and skin itching, and their neurological, biochemical, electrical and histological control mechanisms.

**Materials and methods**

(a) **Sterilizations and hands washing**: All acupuncture needles (sizes of 0.5 mm & 5 mm) were placed in a stainless steel tray (6×10 cm) kept in a stainless steel box (15×25 cm). Then, this box was again put into an autoclave for sterilizations. The computed autoclave (Tomy, steam sterilizer, model-150B) was used for the sterilizations of surgical gloves, a surgical mask, two sets of white clothe (each size, 60×120 cm) for covering unwanted areas of body surface, two sets of white clothe

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(40×60 cm) with a hole at the center (4×8 cm) for covering ears, a white surgical cap, a white gown, scissors, forceps and acupuncture needles within ten minutes. The procedures for hands washing, wearing a cap, a white mask, surgical gloves, and a white gown were the same as in surgical operation. The sterilization of body and ear surfaces had been done by using 70% ethanol hibitane solution, and then followed by the procedures of micro ear needle implantations and body needle insertions at Ryodoten.

(b) Skin biopsies and histological examinations of urticarial dermatitis: Skin biopsy specimens were taken at the sides of urticarial dermatitis (wheal areas) by the method of skin punch under local anesthesia. The first skin specimens were punched out at early period of eruptions and the second skin specimens were collected at the period of ten time stimulations. And then, the last skin specimens were punched out at the end of twenty time stimulations. All the skin tissues were fixed in 5% formalin solution and the routine hematoxylin and eosin staining technic was used for histological examinations under light microscope. Van Gieson and Malory-Azan staining technics were used for the observations of fine or coarse collagen.

(c) Instruments and procedures: For the detections of body and ear Ryodoten (skin good conducting points), a twelve volt Neurometer instrument, AC model (alternating current model) of D-401 type (made in Neuro Medical Industry Co. Ltd., Osaka, Japan) was used. This Neurometer consisted of a micro-ampere meter (μA) for recording the micro current of zero to two hundreds and fifty. There were a searching electrode (a positive pole) and a grip electrode (a negative pole).

This grip electrode was made of stainless steel coated copper cylinder and the diameter was 2.5 centimeters. The most important part for the detections of body and ear Ryodoten was a searching electrode. It was made of stainless steel coated three centimeter long copper cylinder and the diameter was one centimeter. This cylinder had a flat tip in one end and a gold ball tip at the opposite side. The size of this gold ball was 0.5 centimeter, and this hollow gold ball was useful to locate the body and ear Ryodoten concerned to urticarial dermatitis and skin itching (Table I & Figure 12). The method of detections of highest electrical conducting point or Nakatani’s Ryodoten were the same as described in the previous paper and the reasons for using both body and ear Ryodoten were also mentioned (14,15). For the electrical stimulations at body Ryodoten, the second type of Neuro-stimulator, AC model of NA-J type which could supply six channel random types of low frequency electrical impulse was used through out the stimulations. This Neuro-stimulator had a micro volt adjusting switches (0 to 400 μV), a frequency control (1 to 10 Hz) and the timer (0 to 30 minutes). For ear needlings, the sizes of three millimeter (0.3 cm) long stainless steel coated micro needles and for body needlings, the sizes of fifteen millimeter (1.5 cm, No.5) were used. A pair of well sterilized scissors was used for cutting out sterilized color surgical adhesive tapes into small pieces and the sterilized forceps was also used to pick up well sterilized micro needles for micro needle implantations at ear Ryodoten.

* The outline of this work was firstly reported by Dr. Msada Hiroyuki at the 160th General Assembly of Japan Dermatology Congress, the 10th May, 1980 and the 33rd Japan Ryodoraku Autonomic nerve Society, the 15th December, 1981.
and pieces of tape; these small pieces of tape were also used to cover and fix all the micro needles after implantations and stimulations. A stereo microscope (Nikon type) which could supply spot light was used for the observations and implantations of micro needle at both ear Ryodoten. For cleaning and sterilization of body and ear surfaces, 70% ethanol hibitane solution was used.

**TABLE(1).** THIS TABLE SHOWS THE HIGHEST ELECTRICAL CONDUCTING POINTS OF NAKATANI’S RYODOTEN CORRESPONDING TO URTICARIAL DERMATITIS AND SKIN ITCHING, AND THE AREAS OF SPINAL AND CEREBRAL NERVE INNERVATION.

<table>
<thead>
<tr>
<th>Nakatani’s Ryodoten (Highest electrical conducting points)</th>
<th>Original Chinese acupuncture Points</th>
<th>Cerebral and spinal nerves</th>
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<tbody>
<tr>
<td>(1) Ear Ryodoten</td>
<td></td>
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<tr>
<td><strong>Fossa triangularis</strong></td>
<td>a) FUKEN (府件)</td>
<td>1) Trigeminal nerves(V)</td>
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<td></td>
<td>b) JIN (腎)</td>
<td>(三叉神経)</td>
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<tr>
<td></td>
<td>c) KAN (肝)</td>
<td>2) Facial nerves(V)</td>
</tr>
<tr>
<td><strong>Cavum conchae</strong></td>
<td>d) SHIN (心)</td>
<td>(顔面神経)</td>
</tr>
<tr>
<td></td>
<td>e) HAI (肺)</td>
<td>3) Vagal nerves(X)</td>
</tr>
<tr>
<td><strong>Cymba conchae</strong></td>
<td>f) TAIYO (大腸)</td>
<td>(迷走神経)</td>
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<tr>
<td></td>
<td>g) MAKURA (枕)</td>
<td>4) Trigeminal nerves(V)</td>
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<tr>
<td></td>
<td></td>
<td>(三叉神経)</td>
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<tr>
<td><strong>Antihelix &amp; lobus auricularis</strong></td>
<td></td>
<td>Facial nerves(V)</td>
</tr>
<tr>
<td></td>
<td>f) TAIYO (大腸)</td>
<td>(顔面神経)</td>
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<tr>
<td></td>
<td>g) MAKURA (枕)</td>
<td>Vagal nerves(X)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(迷走神経)</td>
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<tr>
<td>(2) Body Ryodoten</td>
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<tr>
<td><strong>Ventral Ryodoten</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>h) CHUFU (中府)</td>
<td>5) C5</td>
</tr>
<tr>
<td></td>
<td>i) CHUKAN (中脘)</td>
<td>6) Th8</td>
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<tr>
<td></td>
<td>j) TENSU (天枢)</td>
<td>7) Th9</td>
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<tr>
<td></td>
<td>k) KANGEN (関元)</td>
<td>8) Th11-12</td>
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<tr>
<td><strong>Dorsal Ryodoten</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>l) FUCHI (風池)</td>
<td>9) C4</td>
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<tr>
<td></td>
<td>m) TENCHU (天柱)</td>
<td>10) C4</td>
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<tr>
<td></td>
<td>n) KENSEI (肩井)</td>
<td>11) Th3</td>
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<tr>
<td></td>
<td>o) HAI (肺)</td>
<td>12) Th4-5</td>
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<td></td>
<td>p) KOKO (膏肓)</td>
<td>13) Th8-9</td>
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<td></td>
<td>q) KAN (肝)</td>
<td>14) L1</td>
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<td></td>
<td>r) SANSHO (三焦)</td>
<td>15) L2</td>
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<td></td>
<td>s) JIN (腎)</td>
<td>16) L2</td>
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The absolute ethanol hibitane solution was prepared by adding 5 ml of hibitane solution into 100 ml of absolute ethanol. And then, the 70% ethanol hibitane solution was again prepared by adding 30 ml of distilled water into 70 ml of 5% hibitane ethanol solution. Absolute ethanol solution was prepared by keeping commercial ethanol (98.8%) in anhydrous copper sulfate (CuSO4=159.61 molecular weight) kept in a beehive jar for more than three months.

The procedures for electrical stimulations of ear Ryodoten were arranged into four categories. The former was the covering of a white clothe (60x12, cm) with its
central hole (4×8 cm) allowing the ear to come out, the sterilization of ear surfaces by 70% ethanol hibitane solution, the detections of ear Ryodoten and their sterilized micro needle implantations, and then followed by electrical stimulations through the implanted micro needle by using the same instrument (Neuro-detector). These electrical stimulations were performed for at least thirty seconds/micro needle on both left and right ears. There were five Ryodoten on the left and the same five points were also present on the right. The total ear Ryodoten were ten and the total time of stimulations was five minutes.

The latter procedures were the covering of sterilized white clothe on unwanted areas of body surface, sterilization of body surface by 70% ethanol hibitane solution, the detections of body Ryodoten, insertions of well sterilized body needle at Ryodoten up to the depth of cutaneous, subcutaneous and muscle layers by using body needle inserting cylinder consisted of needle pushing piston at the opposite side. There were six Ryodoten on the ventral surfaces and the other sixteen on the dorsal surfaces as shown in the table (1) and figure (12). There were also six sets of stainless steel electrical cord which had different colors such as (a) red (channel-1), (b) blue (channel-2), (c) yellow (channel-3), (d) black (channel-4), (e) white (channel-5), and (a) brown (channel-6) respectively. Each color cord consisted of a plug connector (tip = positive pole and body = negative pole) to each channel of Neuro stimulator, and the opposits end had a red (a positive pole) and a black (a negative pole) crocodile tooth-like clippers. Then, held up the channel-1 cord and a red color clip was connected to CHUKAN and a black color was to KANGEN. The channel-2 and 3 cords were also connected to both left and right CHUFU and TENSU, the same order as above mentioned. The timer was set up at ten minutes and the switches of channel-1, 2 and 3 were adjusted to 100 micro volt and the frequency of 4 Hz. Then, the procedure for ventral stimulations through the acupuncture needles at ventral body Ryodoten could be completed after ten minutes. The next procedures were the covering of a sterilized white clothe on unwanted dorsal surfaces of the body, sterilizations of body surface by 70% ethanol hibitane, the detections of dorsal body Ryodoten, insertions of well sterilized body needle at Ryodoten as above mentioned.

The procedures for needle insertions and electrical stimulations were the same as described. The order and connection of electrical cords were as follow: (a) channel-1-left TENCHU (by red clipper) to left FUCHI (by black clipper), (b) channel-2-right TENCHU (by red clipper) to right FUCHI (by black clipper), (c) channel-3-left KENSEI (by red clipper) to left HAI (by black clipper), (d) channel-4-right KENSEI (by red clipper) to right HAI (by black clipper), (e) channel-5-left KAN (by red clipper) to left SANSHO (by black clipper), and (f) channel-6-left KAN (by red clipper) to right SANSHO (by black clipper) respectively. Then, the timer was set up at ten minutes, the micro volt control switches were adjusted at 100 micro volt and the same frequency of 4 Hz was used as described. The complete electrical stimulations through the acupuncture needles would be after ten minutes. Then, all the electrical cords were disconnected and inserted needles were also taken out after thorough sterilization of skin surfaces by 70% ethanol hibitane solution. The similar procedures
of electrical stimulations on both body and ear Ryodoten were performed in every three
days for at least ten to twenty times until urticarial dermatitis and skin itching
disappeared.

(d) Electricity of Ryodoten (highest electrical conducting points) : 1)
Ear Ryoeten—The initial electricity of ear Ryodoten was recorded during and after the
implantations of ear micro needle. The time for recording of each electricity was
considered as fifteen seconds, however the time for stimulations was standardized at
thirty seconds, because the electricity of each Ryodoten decreased if the search electrode
of gold ball tip was placed on implanted micro needles more than fifteen seconds.
However in some cases of resistant type of urticarial dermatitis, the electricity did not
decrease at all. 2) Body Ryodoten—The initial electricity of body Ryodoten was also
recorded on both ventral and dorsal areas after the insertions of body needle by holding
a grip electrode on right or left hand, and the recording of electricity was made by the
method of insertions of the plug connected to each channel into Neuro detector of
negative socket. Then, the electricity of each body Ryodoten could be recorded within
fifteen seconds. Thus, the electricity of all Ryodoten before and after electrical stimu-
lations had been investigated by applying the same method as described.

(e) Serum amino acid analyses : There were two groups of patient such as
(a) Non-stimulated control (50 cases) and (b) Electrical stimulated group(I) (50 cases)
as urticarial dermatitis group. Blood serum amino acid analyses of each patient were
performed before and after electrical stimulations twice in a month (4 time stimulations/
sperm amino acid analysis) for at least five time analyses at twenty time electrical
stimulations. Serum amino acid had been done by using computed automatic serum
amino acid analyzer of Hitachi model 638. All the recordings and the lists of serum
amino acids were as shown in the Table (I) and Figure (1). The elevations of serum
amino acid began from the period of ten time stimulations and they reached the highest
peak at twenty time stimulations.

(f) Procedures of water drinking : Allowed each patient to drink a cup
of water (100 to 200 ml) after each time of electrical stimulations and every morning as
soon as he got up from bed. The reduced degree of urticarial dermatitis and skin itching
was prominent among the patients who followed the procedure of water drinking as discri-
bed. Decrease of electricity also could be seen among the patients who obeyed the same
procedure. However, the relationship between the water drinking and the decrease of
electricity at Ryodoten would discuss on the next publications of atopic dermatitis
(Primary skin care, part (I)).
Figure 1. This figure illustrated the graphic recordings of serum amino acid in a typical case of non-
stimulated control and a typical case of electrical stimulated group (2).

Tyrosine was remarkably elevated in electrical stimulated group (1).
Figure 2

Figure 3

- TALENGIETASIS
- MIXED INFLAMMATROY CELL INFILTRATES
- EDEMA
- NEAR NORMAL PATTERN OF BLOOD VESSEL
FIG. 4

FIBROCYTE

FRAGMENTED NEUTROHILS

FIG. 5

NEWLY FORMED BLOOD VESSEL
FIG. 6

- MAST CELL
- LYMPHOCYTE
- HISTIOCYTE
- DILATED BLOOD VESSEL

FIG. 7

- INFLAMMATORY AREA
- TAENGIECTASIS
- COLLAGEN BUNDLE
MIXED INFLAMMATORY CELLS

REDUCED EDEMA

FIG. 8

SCATTERING COLLAGEN FIBERS

FRAGMENTED COLLAGEN FIBERS

FIG. 9
FIG. 10

TRANSPARENT GROUND SUBSTANCE

FIBROBLAST

FIG. 11

LYTIC NATURE OF COLLAGEN

DENSE COLLAGEN FIBERS
Figure (1) illustrates the possible pathway of spino-thalamic tract for the control of sensation. (4) and (5) show the stopping and the normal level of electric current.
LEGENDS OF FIGURE 2 TO 11

Fig. 2. A typical histologic diagnosis of urticarial dermatitis at early stage of eruptions before electrical stimulations. Colonies of mixed inflammatory cell in the perivascular areas, edema of reticular dermis, and dilated blood vessels or telangiectasis could be seen, H & E stain, X 90.

Fig. 3. A typical histologic diagnosis of urticarial dermatitis after ten time electrical stimulations. Decrease of mixed inflammatory cells, reduced edema of reticular dermis, slight narrowing of blood vessels and some scattering fibroblasts could be seen, H & E stain, X 90.

Fig. 4. A typical histologic diagnosis of urticarial dermatitis after twenty time electrical stimulations. Much more reduced inflammatory cells, scattering fibroblasts and transparent normal pattern could be observed, H & E stain, X 90.

Fig. 5. A typical histologic diagnosis of urticarial dermatitis after twenty time electrical stimulations. A newly formed capillary loop with its surrounded glomus cells in the area of reticular dermis could be seen, H & E stain, X 200.

Fig. 6. A typical histologic diagnosis of urticarial dermatitis at early stage of eruption. A group of mixed inflammatory cells such as (a) lymphocytes, (b) histiocytes, (c) mast cells, edema of reticular dermis and telangiectasis could be seen, H & E stain, X 200.

Fig. 7. A typical histologic diagnosis of urticarial dermatitis at early stage of eruption. Remarkable staining of collagen bundles (blue color) surrounding a large group of inflammatory cells with dilated blood vessels (left side) and a small group of inflammatory cells (right side) at the areas of reticular dermis could be seen, M & A stain, X 90.

Fig. 8. A typical histologic diagnosis of urticarial dermatitis after ten time electrical stimulations. Decrease of mixed inflammatory cells such as (a) lymphocytes, (b) histiocytes, (c) mast cells with scattering fibroblasts and neutrophils could be seen. These inflammatory cells showed slight weak staining of hematoxylin and eosin than the early stage of eruption; the transparent ground substance and reduced edema of reticular dermis also could be seen, H & E stain, X 200.

Fig. 9. A typical histologic diagnosis of urticarial dermatitis after ten time electrical stimulations. This histological Picture showed loss of surrounded colonies of inflammatory cell when compared with figure (6), and scattering nature of fragmented collagen fibers and slightly weak staining ability of Mallory-Azan (light blue) could be seen, M & A stain, X 90.

Fig. 10. A typical histologic diagnosis of urticarial dermatitis after twenty time electrical stimulations. Much more reduced number of inflammatory cells and scattering fibroblasts with a transparent ground substance could be seen. This histological picture showed almost normal pattern, H & E stain, X 200.

Fig. 11. A typical histologic picture of urticarial dermatitis after twenty time electrical stimulations, Mallory Azan staining of collagen fibers showed much more weaker (light or faint blue), lytic nature, and some deposits of fragmented collagen fiber, M & A stain, X 90.
Results

The areas or the sides of electrical stimulation and their relationship to both cerebral and spinal nerve innervations were as shown in the Table (1) and Figure (12). The areas of highest electrical conducting point or Nakatani's Ryodoten concerned to urticarial dermatitis and skin itching were selected at the nearest sides of the original Chinese acupuncture point.

(A) Electricity of non-stimulated control (50 cases) and electrical stimulated group (I) (50 cases)

Ear Ryodoten: There were total ten Ryodoten on both left and right ears in all groups (Table (1) & Figure (12). The detected Ryodoten on left or right ear at the area of Fossa triangularis was (a) FUKE, supplied by Trigeminal nerves, at the areas of Cuvum conchae was (b) J IN, (c) KAN, supplied by Facial nerves, at the areas of Cymba conchae was (d) SHIN, (e) HAI, supplied by Vagal nerves, and at the areas of Antihelix and lobus auricularis was (f) TAIYO, (g) MAKURA, may be supplied by mixed nerves of Trigeminal, Vagal and Facial.

Body Ryodoten: There were total twenty two Ryodoten on both ventral and dorsal surfaces of the body (six on the ventral and the other sixteen on the dorsal). The ventral Ryodoten were (a) CHUFU (left and right), (b) CHUKAN, (c) KANGEN, and (d) TENSU (left and right). The dorsal Ryodoten were (e) FUCHI (left and right), (f) TENCHU (left and right), (g) HAI (left and right), (h) KOKO (left and right), (i) KAN (left and right), (j) SANSHO (left and right), (k) JIN (left and right) respectively. The electricity of each Ryodoten was as shown in the followings:

(1) Non-stimulated control (50 cases)

It was rather difficult to detect the electricity of non-stimulated control. It was because the non-stimulated control did not show the higher electrical conduction especially on both body and ear points comparing to the Ryodoten of urticarial dermatitis and skin itching patients. However, the possible electricity of each point was recorded as described: Ear Ryodoten - left ear, the initial electricity at FUKE = 72 ± 3 μA, SHIN = 70 ± 3 μA, HAI = 76 ± 4 μA, JIN = 75 ± 4 μA, KAN = 76 ± 3 μA, TAIYO = 82 ± 5 μA, and MAKURA = 74 ± 4 μA; right ear, the initial electricity at FUKE = 80 ± 4 μA, SHIN = 78 ± 3 μA, JIN = 80 ± 5 μA, KAN = 78 ± 4 μA, TAIYO = 80 ± 3 μA, and MAKURA = 68 ± 6 μA respectively, and the final electricity of left ear at FUKE = 70 ± 3 μA, SHIN = 72 ± 4 μA, HAI = 73 ± 5 μA, JIN = 80 ± 4 μA, KAN = 78 ± 3 μA, TAIYO = 74 ± 6 μA, MAKURA = 72 ± 3 μA; right ear, the final electricity at FUKE = 81 ± 6 μA, SHIN = 80 ± 4 μA, JIN = 75 ± 3 μA, KAN = 78 ± 6 μA, TAIYO = 79 ± 3 μA, MAKURA = 69 ± 7 μA. Body Ryodoten - (a) Ventral body Ryodoten, left body, the initial electricity at CHUFU = 72 ± 4 μA, TENCHU = 76 ± 3 μA, right body, the initial electricity at CHUFU = 78 ± 5 μA, TENCHU = 80 ± 3 μA, and mid body, CHUKAN = 74 ± 4 μA, KANGEN = 76 ± 4 μA; left body, the final electricity at CHUFU = 76 ± 6 μA, TENCHU = 73 ± 3 μA, mid body, CHUKAN = 74 ± 5 μA; (b) Dorsal body Ryodoten, left body, the initial electricity at KENSEI = 75 ± 8 μA, HAI = 79 ± 2 μA, KOKO = 80 ± 4 μA, KAN = 72 ± 6 μA, SANSHO = 73 ± 6 μA; left body, the final electricity at KENSEI = 76 ± 10 μA, HAI = 77 ± 6 μA, KOKO = 82 ± 5 μA, KAN = 76 ± 6 μA, SANSHO = 78 ± 3 μA, JIN =
=75±7 μA, right side, the final electricity at KENSEI = 75±4 μA, HAI = 77±6 μA, KOKO = 72±6 μA, KAN = 70±4 μA, SANSHO = 74±5 μA, JIN = 72±6 μA respectively.

(2) Electrical stimulated group (I) (50 cases)

Urticarial dermatitis and skin itching were remarkable. Therefore, it was so easy to find out or to locate both body and ear Ryodoten as above mentioned. The highest electrical conducting points of Nakatani's Ryodoten could easily be detected by 12 volt if the skin conducting or permeable points showed more than 100 μA, and the standard time for recording this electricity was fifteen seconds. The followings were the Ryodoten concerned to urticarial dermatitis and skin itching: Ear Rodoten-left ear, the initial electricity at FUKEN = 165±3 μA, SHIN = 156±5 μA, HAI = 170±4 μA, JIN = 168±4 μA, KAN = 172±6 μA, TAIYO = 170±6 μA, MAKURA = 167±3 μA, right ear, the initial electricity at FUKEN = 166±2 μA, SHIN = 156±5 μA, HAI = 172±4 μA, JIN = 168±3 μA, KAN = 172±6 μA, TAIYO = 170±6 μA, MAKURA = 167±3 μA respectively; left ear, the final electricity at FUKEN = 80±2 μA, SHIN = 90±6 μA, HAI = 95±4 μA, JIN = 86±3 μA, KAN = 80±2 μA, TAIYO = 86±3 μA, MAKURA = 84±4 μA, right ear, the final electricity at FUKEN = 81±4 μA, SHIN = 86±6 μA, HAI = 83±4 μA, KAN = 84±5 μA, TAIYO = 86±4 μA, MAKURA = 78±6 μA respectively. Body Ryodoten- (a) Ventral body Ryodoten, left body, the initial electricity at CHUFU = 166±5 μA, TENSU = 168±4 μA, right body, the initial electricity at CHUFU = 167±3 μA, TENSU = 170±2 μA, mid body, the initial electricity at CHUKAN = 169±4 μA, KANGEN = 167±5 μA, left body, the final electricity at CHUFU = 78±4 μA, TENSU = 88±3 μA, right body, the final electricity at CHUFU = 90±4 μA, TENSU = 80±6 μA, mid body, the final electricity at CHUKAN = 82±3 μA, KANGEN = 80±6 μA; (b) Dorsal body Ryodoten, left body, the initial electricity at FUCHI = 166±7 μA, TENCHU = 168±4 μA, KENSEI = 165±3 μA, HAI = 173±2 μA, KOKO = 168±4 μA, KAN = 172±6 μA, SANSHO = 169±5 μA, JIN = 166±3 μA, right body, the initial electricity at FUCHI = 165±4 μA, TENCHU = 167±3 μA, KENSEI = 168±5 μA, KOKO = 170±3 μA, KAN = 169±2 μA, SANSHO = 168±5 μA, JIN = 166±3 μA respectively. And then, the final electricity after twenty time stimulations described as follow; (a) Ventral body, left body, the final electricity at CHUFU = 76±4 μA, TENSU = 78±5 μA, right body, the final electricity at CHUFU = 77±2 μA, TENSU = 80±7 μA, mid body, the final electricity at CHUKAN = 75±2 μA, KANGEN = 80±7 μA respectively; (b) Dorsal body, left side, the final electricity at KENSEI = 74±3 μA, HAI = 83±5 μA, KOKO = 86±7 μA, KAN = 88±4 μA, SANSHO = 76±3 μA, JIN = 75±8 μA, right side, the final electricity at KENSEI = 80±5 μA, HAI = 84±3 μA, KOKO = 82±6 μA, KAN = 78±7 μA, SANSHO = 79±6 μA, JIN = 76±2 μA respectively.

Therefore, the total mean electricity of the body and ear Ryodoten before and after electrical stimulations could describe as:

(1) Body Ryodoten = 168±4 μA to 80±6 μA
(2) Ear Ryodoten = 166±7 μA to 85±3 μA

(B) Serum amino acid in (1) Non-stimulated control and (2) Electrical stimulated group (I): Twenty two kinds of serum amino acid were analysed by computed automatic serum amino acid analyzer (Hitachi, model 835) in electrical
stimulated group (I) and non-stimulated control as shown in figure (1) and table (II). Figure (1) illustrated the graphic recordings of serum amino acid in a typical case of non-stimulated control (A) and a typical case of electrical stimulated group (I) (B). Serum amino acid elevations could be encountered from the period of ten time stimulations and they reached the highest peak at the period of twenty time stimulations. The serum amino acids such as (1) Taurine, (2) Aspartic acid, (3) Threonine, (4) Serine, (5) Glutamine, (6) Glycine, (7) Alanine, (8) Valine, and (9) Tyrosine were remarkably elevated due to repeated electrical stimulations through the acupuncture needles at both body and ear Ryodoten.

(1) Levels of serum amino acid in non-stimulated control: The serum amino acids in non-stimulated control showed no change as shown in figure (1) and table (2).

TABLE (II). THIS TABLE SHOWS THE ELEVATION OF SERUM AMINO ACIDS AND THE DECREASE OF ELECTRICITY AT RYODOTEN IN URTICARIAL DERMATITIS AND SKIN ITCHING PATIENTS (ELECTRICAL STIMULATED GROUP (I)) AFTER REPEATED ELECTRICAL STIMULATIONS OF TWENTY TIME COMPARING TO THE NON-STIMULATED CONTROL.

<table>
<thead>
<tr>
<th>Serum Amino acids</th>
<th>Non-stimulated Control group</th>
<th>Electrical stimulated Group (I)</th>
<th>Significant increase or decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>initial</td>
<td>Final</td>
<td>initial</td>
</tr>
<tr>
<td>Taurine</td>
<td>1.1±0.0</td>
<td>1.2±0.0</td>
<td>1.3±0.0</td>
</tr>
<tr>
<td>Urea</td>
<td>0.6±0.0</td>
<td>0.5±0.0</td>
<td>0.6±0.0</td>
</tr>
<tr>
<td>Aspartic acid</td>
<td>0.7±0.0</td>
<td>0.6±0.0</td>
<td>0.5±0.0</td>
</tr>
<tr>
<td>Threonine</td>
<td>1.6±0.0</td>
<td>1.4±0.0</td>
<td>1.5±0.0</td>
</tr>
<tr>
<td>Serine</td>
<td>2.5±0.1</td>
<td>2.4±0.1</td>
<td>4.2±0.2</td>
</tr>
<tr>
<td>Asparagine</td>
<td>1.2±0.2</td>
<td>1.4±0.1</td>
<td>1.3±0.2</td>
</tr>
<tr>
<td>Glutamic acid</td>
<td>6.2±1.1</td>
<td>5.8±1.3</td>
<td>6.6±1.2</td>
</tr>
<tr>
<td>Glutamine</td>
<td>3.2±0.1</td>
<td>3.1±0.4</td>
<td>3.3±1.6</td>
</tr>
<tr>
<td>Proline</td>
<td>0.9±0.0</td>
<td>0.8±0.0</td>
<td>0.8±0.0</td>
</tr>
<tr>
<td>Glycine</td>
<td>2.4±0.3</td>
<td>2.3±0.1</td>
<td>2.2±0.3</td>
</tr>
<tr>
<td>Alanine</td>
<td>3.6±0.1</td>
<td>3.4±0.2</td>
<td>3.5±0.4</td>
</tr>
<tr>
<td>Valine</td>
<td>1.8±0.1</td>
<td>1.7±0.2</td>
<td>1.6±0.1</td>
</tr>
<tr>
<td>Cystine</td>
<td>0.0±0.0</td>
<td>0.0±0.0</td>
<td>0.0±0.0</td>
</tr>
<tr>
<td>Methionine</td>
<td>0.0±0.0</td>
<td>0.0±0.0</td>
<td>0.0±0.0</td>
</tr>
<tr>
<td>Isoleucine</td>
<td>0.9±0.0</td>
<td>0.8±0.0</td>
<td>0.8±0.0</td>
</tr>
<tr>
<td>Leucine</td>
<td>1.1±0.0</td>
<td>1.1±0.0</td>
<td>0.9±0.0</td>
</tr>
<tr>
<td>Tyrosine</td>
<td>0.8±0.0</td>
<td>0.8±0.0</td>
<td>0.7±0.0</td>
</tr>
<tr>
<td>Phenylalanine</td>
<td>0.7±0.0</td>
<td>0.8±0.0</td>
<td>0.6±0.0</td>
</tr>
<tr>
<td>Ammonia</td>
<td>5.0±1.3</td>
<td>6.1±1.4</td>
<td>5.4±1.5</td>
</tr>
<tr>
<td>Ornithine</td>
<td>2.0±0.1</td>
<td>2.3±0.4</td>
<td>2.2±0.1</td>
</tr>
<tr>
<td>Lysine</td>
<td>3.0±0.2</td>
<td>2.8±0.5</td>
<td>2.6±1.2</td>
</tr>
<tr>
<td>Histadine</td>
<td>0.8±0.0</td>
<td>0.7±0.0</td>
<td>0.9±0.0</td>
</tr>
<tr>
<td>Arginine</td>
<td>0.6±0.0</td>
<td>0.7±0.0</td>
<td>0.6±0.0</td>
</tr>
<tr>
<td>Electricity(μA)</td>
<td>80±6</td>
<td>76±10</td>
<td>167±5</td>
</tr>
</tbody>
</table>

M ± S.D. Significant difference from the initial values and the control group.

** P<0.001 & *0.01<P<0.001, and each group consisted of, 50 patients.
(2) Levels of serum amino acid in electrical stimulated group (I):
The levels of serum amino acid in electrical stimulated group (I) were as (1) Taurine, $1.3\pm0.0$ to $4.5\pm1.1 \text{ \( \mu \) moles/100 ml}$, (2) Aspartic acid, $0.5\pm0.0$ to $4.2\pm1.1 \text{ \( \mu \) moles/100 ml}$, (3) Threonine, $1.5\pm0.0$ to $4.9\pm1.5 \text{ \( \mu \) moles/100 ml}$, (4) Serine, $2.4\pm0.0$ to $6.5\pm1.1 \text{ \( \mu \) moles/100 ml}$, (5) Glutamine, $3.3\pm1.6$ to $6.6\pm1.4 \text{ \( \mu \) moles/100 ml}$, (6) Glycine, $2.2\pm0.3$ to $6.8\pm1.4 \text{ \( \mu \) moles/100 ml}$, (7) Alanine, $3.5\pm0.4$ to $9.2\pm1.5 \text{ \( \mu \) moles/100 ml}$, (8) Valine, $1.6\pm0.1$ to $6.1\pm1.3 \text{ \( \mu \) moles/100 ml}$, and (9) Tyrosine, $0.7\pm0.0$ to $3.1\pm0.1 \text{ \( \mu \) moles/100 ml}$ respectively.

(C) Histological diagnosis of urticarial dermatitis: The biopsy specimens of urticarial dermatitis showed a sparse superficial perivascular infiltration of mixed inflammatory cells (lymphocytes, histiocytes, and mast cells), edema of reticular dermis, and dilated blood vessels or telangiectasis could be seen as shown in the legend of figure (2), hematoxylin and eosin stain, at the magnification of 90.

The decrease of mixed inflammatory cells, reduced edema of reticular dermis, and loss of dilatation in some blood vessels or reformation of normal pattern could be seen at the period of ten time electrical stimulations as shown in the legend of figure (3).

Much more reduced mixed inflammatory cells with scattering fibroblasts or fibrocytes and fragmented neutrophils could be seen after twenty time electrical stimulations through the acupuncture needles at Nakatani's Ryodoten as shown in the legend of figure (4). A newly formed capillary loop with its surrounded glomus cells also could be encountered at the period twenty time electrical stimulations as shown in the legend of figure (5), hematoxylin and eosin stain, at the magnification of 200.

The histologic sections of figure (6) and (7) explained the higher magnified pattern of urticarial dermatitis at early eruptions and the histologic pattern of ten time electrical stimulations (Fig. 8 & 9). Figure (6) showed a group of mixed inflammatory cells such as (a) lymphocytes, (b) histiocytes, (c) mast cells, and (d) dilated blood vessels or telangiectasis at reticular dermis, hematoxylin and eosin stain, at the magnification of 200. Figure (7) also showed remarkable staining of collagen bundles (blue color) surrounding a large colony of inflammatory cells (left side) and a small colony of the second inflammatory cells (right side) at the area of reticular dermis with dilated blood vessels at the center could be seen, Mallory–Azan stain, at the magnification of 90.

Reduced number of inflammatory cells such as (a) lymphocytes, (b) histiocytes, (c) mast cells, and (d) some scattering fibroblasts or fibrocytes and neutrophils could be seen from the period of ten time electrical stimulations as shown in figure (8). Inflammatory cells in this section showed slight weak staining of hematoxylin and eosin than the early stage of eruption, with transparent ground substance and reduced edema of reticular dermis, hematoxylin and eosin stain, at the magnification of 200. Figure (9) showed loss of surrounded colonies of inflammatory cell and scattering pattern of collagen fibers with weak staining ability of Mallory–Azan (light blue), at the magnification of 90.

Much more reduced number or almost normal pattern of histologic sections could be seen at the end of twenty time electrical stimulations as shown in figure (10).
Discussion

There were some diagnostic points (tenderness point for abdominal pain, McBurney's point, Lanz's point and Kummel's point for appendicitis, Boa's point for gastric ulcer, Ewald's point for bile duct and gall bladder diseases, and Onodera's point for lumbago, sciatica and gastric ulcer (6)), and the therapeutic points (pressure points for massage, the original Chinese acupuncture points for needling, Nakatani's Ryodoten for electrical acupuncturing and the highest electrical conducting points for electrical stimulations by random types of low frequency electrical impulse etc. (22,23,24)) on both ventral and dorsal surfaces of the body, and also ears. All these points were quite useful for the diagnostic and therapeutic purposes. For several years, the therapeutic points especially the original Chinese acupuncture points were so popular among many acupuncturists and doctors for the treatments of pain and various disorder (17,18,19). Acupuncturist inserted the acupuncturing needle through the original Chinese acupuncture points deeply into cutaneous, subcutaneous and muscle layers by the method of pushing, rotating and pulling out (4). This procedure of stimulation especially aimed to balance the flow of body plus-minus (IN-YO (in Japanese) or YIN-YANG (in Chinese)) movements, and also again preferred to take out the ill-feeling of our mind (20,21). These concepts of balancing plus-minus movements and taking out ill-feeling of our mind were known for two thousand years in the biosphere of eastern medicine (25,26). On the other hand, some acupuncturists inserted a thin and long silver needle (5 centimeters long) through the acupuncture points into skin and muscle layers by the same method of pushing, rotating and pulling out until a sudden vibrating or transmitting sensational effect appeared (needling's vibrating effects). These vibrating or transmitting effects could be considered as breaking or separation of some nerve fibers at the skin or muscle layers, because every time during this period of this type of acupuncturing could give such a vibrating or transmitting effect around the areas of needling stimulation. This method also showed seemed to be effective for killing pain and curing the muscle stiffness.

In the year 1950, Nakatani's reported all good electrical conducting points or Ryodoten were present at the nearest sides of the original Chinese acupuncture points known for thousand years (17), and these points were very useful to balance the body plus-minus movements and also for taking out the ill-feeling of our mind. In this case, Nakatani combined the ancient theory and modern theory by the method of electrical stimulations at Ryodoten. However, some acupuncturists disagreed the Ryodoten as acupuncturing points. They claimed that Ryodoten was good electrical conducting points and the original Chinese acupuncturing points were the balancing point of IN-YO (YIN-YANG) movements and for taking out ill-feeling of our mind by acupuncture needle without electricity.
All these procedures were also effective in the treatments of pain and some disease. However, there were no scientific evidences based on biochemistry, electricity, and histology concerned to this problems.

Therefore, we selected the therapeutic points on both body and ear surfaces as the highest electrical conducting points of Nakatani’s Ryodoten at the nearest sides of the original Chinese acupuncture points (Table 1 & Figure 12), and the electrical stimulations were performed by Neuro stimulator instrument, model NA-J type, A.C, made in Neuro Medical Industry Co. Ltd, Osaka, Japan which could supply some random types of low frequency electrical impulse. It was because the electrical stimulations at the highest electrical conducting points of Nakatani’s Ryodoten at the nearest sides of the original Chinese acupuncture point seemed to give much more changes in serum amino acids, the inclined electricity at Ryodoten and the diminish of inflammatory reactions in urticarial dermatitis. The second was that the random types of low frequency electrical impulse supplied by Neuro Medical Industry were more suitable for electrical stimulations as an elevation of serum amino acids than the various low frequency instruments without random impulses. Therefore, we performed the electrical stimulations in the group of patients with urticarial dermatitis for at least ten to twenty time until serum amino acids elevated, the electricity at Ryodoten decreased and the inflammation at urticarial dermatitis diminished (Table 11 & Figure 1 and Legends of Figure 2 to 11).

Nine serum amino acids were elevated from the period of ten time electrical stimulations and they reached the highest peaks at the period of twenty times. All the serum amino acids in electrical stimulated group (1) and non-stimulated control were the mean values after twenty time electrical stimulations. Taurine increased from the initial value of 1.3 μ moles/100 ml to 4.5 μ moles/100 ml, Aspartic acid from 0.5 to 4.2 μ moles/100 ml, Threonine from 1.5 to 4.9 μ moles/100 ml, Serine from 2.4 to 6.5 μ moles/100 ml, Glutamine from 3.3 to 6.6 μ moles/100 ml, Glycine from 2.2 to 6.8 μ moles/100 ml, Alanine from 1.6 to 6.1 μ moles/100 ml, and Tyrosine from 0.7 to 3.3 μ moles/100 ml respectively. One more interesting finding in this urticarial dermatitis was the moderate increase of Lysine from the initial values of 2.6 μ moles/100 ml to 5.4 μ moles/100 ml, and the moderated increased value may promote to effect some cells and some collagen fibers. The increased value of 2.8 μ moles/100 ml showed no significant difference, however this may act as lytic effects in cellular levels, and then some cells and collagen bundles may dissolve. Mallory-Azan staining of collagen fibers also showed weaker staining ability after twenty time electrical stimulations. The electricity at Nakatani’s Ryodoten decreased from the initial value of 167 μ A to 83 μ A.

The histologic diagnosis of urticarial dermatitis at early eruptions showed sparse superficial perivascular infiltration of lymphocytes, histiocytes, mast cells, edema of reticular dermis, and dilated blood vessels or telangiectasis (Fig. 2). Slight or moderate decrease of inflammatory cells could be seen from the period of ten time electrical stimulations (Fig. 3), and then gradually all the inflammatory cells dispersed and scattered at the period of twenty time electrical stimulations Fig. 4). The
fibroblasts increased and some fine collagen fibers also could be observed. Almost all skin sections showed normal pattern after twenty time electrical stimulations. Some histologic pattern also showed just like reabsorption occurred at the period of twenty time electrical stimulations.

Here in these findings, we could consider four possibilities due to repeated electrical stimulations. Some body-protein liberated into nine amino acids may transform into a substance-like, anti-dermatitis (auti-inflammation) and anti-skin itching. The other was the possible blocking effects on (1) spinal levels as supplied by spinal nerves on body surfaces, and (2) medullopontine levels as supplied by cerebral nerves on ear surfaces (Fig. 12). The decrease of electricity at Nakatani's Ryodoten may be due to the reduced inflammation and skin permeability. The electricity at inflammatory areas usually showed higher conduction than non-inflammatory areas. Therefore, the possible neurogenic control of urticarial dermatitis and skin itching in this report could be postulated.

On the other hand, we also try to measure the DNA(γ) of peripheral blood cells in the patients with some disorders after repeated electrical stimulations through the acupuncture needles. It was because the DNA usually supplied the life-core energy through autonomic nervous system into internal organs, muscles and the others.

**SUMMARY**

1) There were several therapeutic points (pressure points for massage, the original Chinese acupuncture points for needling, Nakatani's Ryodoten for electrical acupuncturing, and the highest electrical conducting points for random types of low frequency electrical stimulation) on both body and ear surfaces concerned to various disorders. We selected the highest electrical conducting points or Ryodoten which were at the nearest sides of the original Chinese acupuncture point. It was because these selected points seemed to be much more faster (from ten to twenty times of electrical stimulation) for the increase of serum amino acids, the decrease of electricity at Ryodoten and the diminish of inflammatory cell infiltrations in the urticarial dermatitis lesions than the electrical stimulations performed at any different points.

2) The increase of nine serum amino acids such as (1) Taurine (1 to 5 μ moles/100ml), (2) Aspartic acid (0.5 to 4 μ moles/100ml), (3) Threonine (1 to 5 μ moles/100ml), (4) Serine (2 to 7 μ moles/100ml), (5) Glutamine (3 to 7 μ moles/100ml), (6) Glycine (2 to 7 μ moles/100ml), (7) Alanine (3 to 9 μ moles/100ml), (8) Valine (1 to 6 μ moles/100ml), (9) Tyrosine (0.7 to 3 μ moles/100ml), the decrease of electricity at Ryodoten (167 to 78 μ A) and the diminish of inflammatory cells (lymphocytes, histiocytes, mast cells) in the urticarial dermatitis lesions after repeated electrical stimulations of twenty time.

3) Out of fifty cases of urticarial dermatitis, only ten cases showed recurrent dermatitis though their serum amino acids increased, but the decrease of electricity at Ryodoten stopped at the levels of 100 or 110 μ A, and the histological findings also showed quite a few inflammatory cells.

4) Neuro-stimulator instrument, modelNA-J, made in Neuro Medical Industry Co.
Ltd. which could supply random types of low frequency electrical impulse was much more suitable for this kind of electrical stimulation therapies than the different types of low frequency electrical stimulator which did not supply by random electrical impulses, because random electrical impulses could increase the serum amino acids and reduce the inflammatory reactions since from the period of ten time stimulations.

5) Here we considered that there were four possible ways for the control of urticarial dermatitis and skin itching by this method. Firstly, the body-protein liberated into nine amino acids may transform into a substance-like, anti-dermatitis (anti-inflammation) and anti-skin itching. The second was that the possible effect of electrical blocking on (1) spinal levels as supplied by spinal nerves on both ventral and dorsal surfaces of the body and (2) medullopontine levels as supplied by cerebral nerves (facial nerves, trigeminal nerves, vagal nerves etc.) on both right and left ears. The third was that the reduced inflammatory cell infiltrations could be observed in skin biopsy specimens from the period of ten time stimulations and much more reduction of inflammatory cells with scattering fibroblasts and fragmented collagen fibers could be seen after twenty time stimulations. The last was that the decrease of electricity at Ryodoten may be due to the reduction of skin inflammation and skin permeability. It was because we usually found the higher electrical conduction at severe inflammatory areas of skin.

6) The mechanism of neurogenic control of urticarial dermatitis and skin itching was also postulated in this report.

7) The possible control of urticarial dermatitis (including inflammation) and skin itching by the method of repeated electrical stimulations through the acupuncture needles was found out.

要約

1）種々の機能障害に関連のある治療点が人体と耳の表面上にある。それらマッサージのための圧点、中国の経穴、中谷の電気針治療点、ランダム低周波電気刺激のための電流伝導点（反応良導点）です。

私達は、中国の経穴に最も近似している電流伝導点もしくは中谷良導点を選んだ。これは、これらは血清アミノ酸の増加をもたらし良導点の電流量を減少させ、蕁麻疹性皮膚炎症（蕁麻疹）における炎症細胞の浸潤が消滅するために他の治療点より早い効果をもたらすように思われるからである。（10回から20回の電気刺激）

2）(1) タウリン (1 〜 5 μ moles/100ml) (2) アスパラギン酸 (0.5 〜 4 μ moles/100ml) (3) スレオニン (1 〜 5 μ moles/100ml) (4) セリン (2 〜 7 μ moles/100ml) (5) グルタミン (3 〜 7 μ moles/100ml) (6) グリシン (2 〜 7 μ moles/100ml) (7) アラニン (3 〜 9 μ moles/100ml) (8) パリン (1 〜 6 μ moles/100ml) (9) チロジン (0.7 〜 3 μ moles/100ml) これら9種の血清アミノ酸の増加、良導点における電流量の減少（167 〜 78μA）、そして20回の電気刺激の後、蕁麻疹性皮膚炎における炎症細胞（リンパ球、組織球、肥満細胞）の消滅。

3）50例の蕁麻疹性皮膚炎のうち血清アミノ酸は増加したが、皮膚炎を再発したのは10例のみであった。しかし良導点での電流量の減少は 100μA 乃至 110μA の段階で止ま
り、組織所見はかなり多くの炎症細胞を見せている。

4) ノイロ医科工業株式会社の製造によるNA－J型低周波刺激装置はラジウムタイプの
低周波刺激を与えることができ、これでない他種の刺激装置と比較すると、はる
かに電気刺激治療に適している、その理由はラジウム低周波刺激は血清アミノ酸を増
加させ10回程度の刺激で炎症反応を抑えるからである。

5) ここに私達は蕎麻疹性皮膚炎及び皮膚湿疹の制御に4つの可能の方法があると考え
る。第一に9種のアミノ酸に分解されたタンパク質は、蕎麻疹や皮膚湿疹のような物質に変化すると考えられる。
第二は次の二つの段階での電気ブロックの効果である。
(1) 脊髄神経が腹部及び背部の皮膚表面を走行している脊髄の段階
(2) 脳神経（顔面神経、三叉神経、迷走神経）が左右の耳を走行している延髄橋の段
階。

第三は10回の刺激の後、炎症細胞の浸潤の減少が皮膚標本に観察された、そして20
回の刺激の後、散在する線維芽細胞やとされたコラーゲン線維をもたした炎症細胞
の減少が一層見られた。最後に良導点における電流量の減少は皮膚炎症ならびに皮膚
透過性の減少に基づくものと考えられる。それは普通には極度に炎症を起こしている局
部は電流が良く流れることを知っているからである。

6) 蕎麻疹性皮膚炎及び皮膚湿疹においても神経制御が要求される。
7) 電気針治療法によって蕎麻疹性皮膚炎（炎症も含む）及び皮膚湿疹を制御できることが
明らかになった。

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