THE OUTLINE OF THEORY ABOUT THE MOVEMENT OF THE TENSION OF PARASYMPATHETIC NERVOUS SYSTEM

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The case of allergies which we are clinically handling, inclusive of asthma, eczema, urticaria, hemiplegia, Quincke's edema, allergic rhinitis, especially hay fever, and furthermore, in accordance with my opinion, some of gastric ulcer, angina pectoris, essential hypertension, and menière's symptom complex, have so far been considered by clinicians to have a close relation with the increase of the tension of parasympathetic nervous system. However, as the results of our examination of individual patients inflicted with those diseases through the method of examinations and judgement hitherto applied, we cannot always certify the existence of the said relation in each case. This may be attributed to the incomplete method applied to the examinations or, on the other hand, it entertains some doubt if the increase of the tension of parasympatheticus is an absolutely necessary condition for the onset of allergies and their analogous diseases. I have surveyed the existing methods of diagnoses examination of the autonomic nervous system of human bodies and have succeeded in improving some of them by correcting errors underlying them.

Furthermore, as the result of my clinical examinations of the parasympathetic nervous system and my comparative examination of the same, by animal experimentation, it has been made clear that the onset of allergies and their analogous diseases is rather due to the increase of the tension of parasympatheticus of the affected part than the condition of parasympatheticus in all of the parts of individual, in every respect.

As it is well known, the first advocates of the vagotonia (parasympatheticotonia) were Drs. EPPINGER and HESS, whose names are popular in the history of medical clinique. They also recognized that the tension of the parasympathetic nervous system may increase only locally by the
method of pharmaco-dynamic examination, and called it local vagotonia. But by their own method, they could not determine if the fact is universal in all organs and tissues or not. The reason is that the pharmaco-dynamical examinations-method, in general, cannot be recognized as an appropriate manner of diagnosis over parasympathetic nervous system. I have made clear, however, about the relation between the allergies and the local parasympathicotonia in my study on the allergies, especially asthma, by an improved method of examination and more minute method of judgment. As to the details thereof, I would like to make a report on another article later.

Theory about local pasasympathicotonia in the onset of allergies and their analogous diseases which I advocate may seem, in one respect, to be the development of a theory by Drs. Eppinger and Hess. But there exists some difference from their theory, which in my opinion, is not mere presumption or imagination. This evidence has resulted from not only clinical experiments but also from animal experiments. (Vide: later statement)

In accordance with my systematized study in this field, the local parasympathicotonia is more important for the onset of allergies than the condition of the whole parasympathicus. I think I could certify completely that allergies would occur, provided the tension of local parasympathicus has increased and some causes are added thereto.

Of course, I do not mean to deny the existence of the relation between the local parasympathicus and the whole of it. This would be more clearly understood in the following development of this theory.

Causes stated here seem to include allergen, external wound, coldness, the disturbance of the blood circulation, bacterial infection and others.

Extremely speaking, these reasons would not cause any allergies to human bodies by themselves. I clarified that the reason why allergies are generally stubborn and hard of cure, should they occur, is that the inclination of the tension of the parasympathetic nervous system to stick to the affected part would be prompted by the occurrence of the illness. My theory of local parasympathicotonia concerning the occurrence of allergies, has the contents mentioned above. It is true, however, that though not many in number, some of the allergies are what can be called poly-allergy or diseases moving from one organ to another.
For instance, in the concurrence of hemicrania and asthma, rhinitis and asthma, urticaria or eczema and asthma and other allergic diseases. We can recognize the movement of allergies, from lung to brain, nose, and skin and so on.

On minute examination of the tension of parasympathetic nervous system in this occasion, clinically, we can find that the tension of parasympathicus in the affected part is increased. On the contrary in a part from which the affection has been banished the tension of the said nerve has comparatively been lowered. In some instances, we can find the concurrence of allergies in two parts, but generally speaking, one of them would appear stronger.

Accordingly, we note the difference in the tension of these local parasympathicus. In view of these conditions, from the standpoint of parasympathicus, we regard it as a movement of the tension of the parasympathicus from one organ to another.

My theory about the movement of the tension of the parasympathicus is partially based on the observations of these diseases instances. This theory not only gave light and a possible method of treatment for allergies which had a strong inclination to adhere to an affected part stubbornly, but also remarkably clarified the mechanism of the healing of the allergies in general, not exclusively, to asthma. Up to the present, concerning the treatment of not only asthma, but also stubborn allergies in general, based on disposition and heredity the desensitizations method of which has been very prevailing, in pursuit of allergen which has been regarded as the chief reason thereof.

At present, it is regarded in these diseases, that histamin is isolated because of antigen antibody reaction, consequently the use of antihistamin preparations have been used for the purpose of the solution of this problem.

However, though these trials have been regarded as the method of causal treatment, why do they not produce results as expected at first?

In my opinion, in the onset of allergies of human body, the disposition, especially the increase of the tension of the parasympathicus in a limited part of which influence has over the disposition, is of more significance than these reasons.

In other words, whatever kind of reason may pertain to the individual, so far as it is not the parasympathicotonia of the lung, or so far as it
does not happen to the individual easily inclined to parasympathicotonia of the lung, by trivial causes, we never see any onset of asthma.

This, needless to say, can be applied to all the allergies above-stated. In respect to the above, it may easily be understood that even under the same circumstances of being exposed to the same antigen, the difference of being inflicted with allergies or not is ascribed to the difference in the tension of the parasympathicus in a limited part. It cannot be stressed too much that the defect which the study of this field has hitherto failed to reach is the investigation and study of the human beings' disposition easily inflicted with the allergies.

On the contrary, my study in the nature of individual from the angle of the condition of the autonomic nervous system has no small quantity of suggestions as to the solution of the problem dealing with the allergies, I believe.

Here I should like to state my frank opinion as to some weak points attached to the so-called method of the causal treatment. Concerning the allergen which is regarded as one of the reasons, even though we effect desensitization-method in pursuit of a great many allergen, sooner or later, the individual will be sensitized again. And, though we repeal the histamin with anti-histamin preparation for the time being, the lung eventually will get back to the same condition as it was. Herein lies the reason that we cannot expect so much for the causal treatment, though it appears to be very effective.

In other words, even judging from the result of treatment, it is clearly known that we should put more importance to disposition itself than to causes concerning the onset of the allergies. Therefore, if we can change the disposition by some means, we would be able to solve every problem inclusive of asthma and the treatment of all analogous diseases.

However, this problem, as shown in the trials up to the present, seems to have remained untouched as one of the most difficult problems to solve.

Having examined minutely the relation between the disposition and the autonomic nervous system through a clinical experiment of human body, I found a way by which we can change a disposition for certain diseases though it is impossible in the present study to radically change human disposition.
The most important point of this study, therefore, is strange to say, the observation of cured asthma patients and the movement of the tension of their autonomic nervous system, especially, that of parasympatheticus, for the time being of eruption and non-eruption.

In short, I clarified first of all, that the asthma disposition can be seen, regardless of the tension of the whole parasympathicus in an individual, as a disposition with the high tension of the lungvagus or disposition apt to become highest tension of lungvagus. Then, I thought we could positively cure asthma, from whatever the reasons might be, provided we could keep the tension of lungvagus at a low level, longer than ever.

In order to effect this, it is impossible, though tried in the past, to lower the tension of parasympathetic nerve indirectly, promoting an increase of tension of sympathetic nervous system (by injection of adrenalin, ephedrine and Ca.) The reason is that the effect by these medicines is only temporary, and that they do not always lower the tension of the lungvagus. Well, what can I do as a means to lower the tension of this parasympathicus in a limited part? As I stated above, it is impossible to find a way of radically changing our innate disposition and abnormal tension of the parasympathicus, as at the present. What gives no small possibility and hope to this previous difficulty is my second theory on the parasympathicus, i.e., theory about the movement of parasympathetic nervous system, and the new medicine named "Neurotropin" which I have discovered.

In my systematic study of the parasympathetic nervous system at the time of eruption and non-eruption, in the cases of naturally-cured ex-asthma patients and asthma patients, I found that the healing of asthma is not the lowering of the tension of whole parasympathetic nervous system but the increase, more or less, of the tension in other organs and tissues, though the tension of lungvagus is naturally lowered then. In other words, I found that the healing of asthma is the decentralization of the tension of parasympathicus from lung to other organs and tissues. Well, what then, is the promotor of this movement? Though the study in the naturally cured asthma patients in pursuit of this, it was known that some of them are inflicted with gastric ulcer, some with tuberculosis, others with urticaria, or eczema, and so forth. In spite of this decentralization, therefore, the tension of parasympathicus is so increased at some part of the body
that other allergies may occur than asthma.

Reversely, it was observed that the stubborn asthma was caused on account of the healing of eczema or other allergies.

So I hit upon an idea to make a way to remove the tension of parasympathicus from lung to skin. I certified that this way is suitable to the natural healing and that is safe, through many healed instances. The reason follows:

By the increase of the tension of the parasympathicus of the skin (chiefly the dilatator of the blood vessels of the skin) we can avoid the onset of other allergies on account of collective movement to a certain organ or tissue, with the actions of inhibitory nerve of the heart and some of secretory nerves.

The significance of my second theory on parasympathicus is not only applicable to asthma but all other allergies in general and analogous diseases thereof, for the movements of the tension of parasympathicus has a great significance to the regulations of autonomic nervous system of human beings, in physiological, pathologico-physiological or pathological condition, which have been left unsolved.

Consequently, I do not restrict this theory only to allergies and their analogous diseases, but I wish to introduce it as the theory dealing with the movements of the tension of parasympathicus in the autonomic nervous system (Takino).

As it is widely known, many theories have been introduced in order to explain physiology and clinic of the autonomic nervous system of human beings. It is impossible, needless to say, to explain everything on physiology and clinic of the autonomic nervous system with any one of these theories, as the mechanism of the autonomic nervous system is very intricate. Among those theories, some that are still applicable for the clinic of autonomic nervous system of human bodies, are those of Eppinger and Hess, Bergmann, F. Hoff, and the American scholars influenced by Dr. Cannon.

As those theories were introduced on the bases of study in the autonomic nervous systems at that time, they have some points which should be amended and supplemented, under the spot light of the improved studies of today.

As you are no doubt well aware, however, the fundamental ideas of
those theories, even at present, can be applied to some extent, to explain a certain conditions of the autonomic nervous system.

Be it as it may, the theory of EPPINGER and Hess is too typical to explain the intricate mechanism of the autonomic nervous system and furthermore, the innervation of the organs is not always influenced by sympatheticus and the parasympathicus which has antagonizing actions to the former.

Furthermore, the functions of sympatheticus and parasympathicus are not single, but are, on the contrary, of different nature, morphologically, the two being of one and the same function.

It is not proper to recognize, therefore, the regulations mechanism of autonomic nervous system only in the antagonism of these two nervous systems.

We find the reason why EPPINGER and HESS's theory holds true to this day. It is this:

This antagonism can be most clearly certified in such important organs as heart, lung, stomach, and intestine, under the innervation of N. vagus. But even in those organs, the antagonism cannot be applied to all the tissues composed of them.

For instance, though we can almost certify the antagonism in the bronchial muscles, the regulation mechanism of blood vessels of the lung are more intricate. My theory can be applied even to those organs with such intricated nervous innervations.

The theory of BERGMANN was originated chiefly in the study on the Basedow's disease and hyperthyroidism which have the characteristics of the instability of the autonomic nervous system, and good for certification of conditions of autonomic nervous system at a certain period in the process of these diseases, essential hypertension and beriberi. But this theory can not be applied widely enough to exert influence as he previously expected.

As to his instability, I think, it failed to contain sufficient experimental evidences. Though he cited some cases of diseases which could not be explained by the first theory. Even in those disease patients, however, Bergmann overlooked what a big significance the influence of the parasympathicus might have. What he regarded important in his theory to gainsay those by Eppinger and Hess was the shortage of observation of
parasympathicus of the human being. Consequently we need to note some misjudgement. As it is well known, no small number of the clinic of the autonomic nervous system can be explained by instability of the autonomic nervous system introduced by BERGMANN as well as by antagonism of sympathicus and parasympathicus, so we can easily affirm that F. HOFF advocated the compromising theory of those two. From the different standing from those clinicians stated above, Cannon, a physiologist, regarded both sympathicus in action and cooperative function of the endocrine gland very important.

However, as the trends of the American schools, regarded as the development of Cannon's theory, they put so much stress on sympthicus in action that they seem to have overlooked the abnormality of the parasympathicus in quietude after the action, especially it’s relation with the onset of the diseases. As for the psycho-somatic medicine I think it is necessary to reinvestigate the field (each organ) on which the psyche effects its influence through the parasympathicus. Even when the tension of sympathicus is increased and the functions of endocrine gland is cooperatively stressed, in some individual, it is remarkable that a certain local parasympathicus can effect a reaction different from the parasympathicus of the other part by the stimulus of sympathicus. This is very interesting when we think over a fact that the part in symptoms of the stimulated sympathicus in a certain individual, would rather show a symptoms of the stimulated parasympathicus, when sympathicus is stimulated by adrenalin and thyroid hormon. When the tension of parasympathicus in some part is in an increased condition, this can also be regarded as indicating that the excitation of the parasympathicus of this part can be caused not only by direct stimulation of parasympathicus but also, though indirectly, by the stimulation of sympathicus.

In this respect, the role of parasympathicus in the regulation of the autonomic nervous system, especially in the onset of the diseases, can be regarded as having a more important significance than sympathicus.

Furthermore in the regulation mechanism of the autonomic nervous system, the theory about the movement of the tension of parasympathicus which I advocate, has much for the solution of the problem of parasympathicus of human beings which have been left unsolved. Here, I shall explain the summary of evidence of my theory in outline,
1. The movement of the tension of the parasympathicus in the physiological condition.

The parasympathetic nervous system can be divided, according to the function thereof, into secretory nerve, inhibitory nerve of the heart, dilator nerve of the blood vessels, contractile nerve of the blood vessels and contractile nerve of the smooth muscles of general organs (including accelerator nerve of peristalsis). As those nerves are working for the metabolism, blood circulation, and peristalsis, needless to say, the tension thereof would respond to the demand of the human beings. Though it is said that the tension of a child's parasympathicus is more increased compared with that of the grown-ups, it seems to be neglected that all the functions of the parasympathicus are so.

As has clearly known, the characteristics of a child is to grow up, so it can be regarded that the tension of parasympathicus with the function of assimilation would be increased. That is, the tension of secretory nerve, dilator nerve of the blood vessels, inhibitory nerve of the heart, generally speaking, are increased in the case of a child.

In reality, the fact that the child is liable to sweat and salver, can be regarded as one of the promoted tension of secretory nerves, and that we can find respiratory arrhythmia remarkably in a child can be regarded as one of the proofs to show the tension of the inhibitory nerve of the heart.

Though the perspiration has been regarded as the function of sympathetic, this is not only from the clinical and pharmacodynamical point of view, but also from the Dale's theory, at least as for the human beings, this should be explained as one of the phenomena concerning the parasympathicus, on this subject I would like to state more later.

The dilator nerve of the blood vessels, generally speaking, works cooperatively both with the inhibitory nerve of the heart and with the secretory nerve. This can be proved from the dilatation of the blood vessels of the exocrine and endocrine gland at the time of their secretion and the action of the inhibitory nerve of the heart and the dilator nerve of the general blood vessels at the time of such reflexes as carotid sinus reflex and depressor reflex.

Be that as it may, in childhood, generally speaking the function of these three nerves, namely, secretory nerve, dilator nerve of the blood
vessels and inhibitory nerve of the heart, are increased, and those commonly work in cooperation one with another. But it is remarkable that the tension of the contractile nerve of parasympathicus of the general organs and tissues would not be increased with them. When a human being has grown up, the relation stated above becomes reversed, and the tension of parasympathicus with assimilating functions become lower, on the contrary, the tension of the contractile nerve of the parasympathicus would be increased.

Therefore, when we observe the movement of the parasympathicus through the course of growing up of a child from the standpoint of the tension of this nervous system, we can judge it as a movement of the tension of the parasympathicus from the nerves for assimilating function into the contractile nerve of the parasympathicus.

Of course, the fact that the tension of the sympathicus would be increased, with the growing-up of a child into an adult, is needless to say, to have some relation with this, but the chief promotor in this case is anything but antagonism between sympathicus and parasympathicus, which you can understand with the course of my study. This relation, needless to say, has much application principally for the movement of tension of parasympathicus in wakefulness and sleeping, in spring and autumn.

It is necessary to note here, I do believe, that the method of application is different in the case of adult and child. The reason is that the principal manner of the movement of the tension of parasympathicus is influenced by the movement of the tension of this nervous system in accordance with the age, about which I shall state later.

The nerves which work for the same purpose and other contractile nerve of the parasympathicus in the parasympathetic nervous system, in such a physiological condition, would not increase their tension at the same time, but on the contrary when one is increased, the other would be restrained more or less, containing some similarity to the reciprocal innervation of Dr. Sherrington.

The comparative independence of the parasympathicus, according to Dr. Cannon, is due to this, that the parasympathicus is not likely to cause to make a strong chain anatomically as the sympathicus does. But at present, since the parasympathicus of the spinal cord has been discovered by prof. Ken Kure, this opinion would not explain enough the
independence of the parasympathicus.

Better than this the independence of the parasympathicus might be explained by inhibitious phenomena, which I have found and also by the fact that the endocrine gland has in general less to do with the action of the parasympathicus, unlike the case of sympathicus.

But, this condition, needless to say, would have a different phenomena under the pathologico-physiological or pathological conditions of the parasympathicus. (Vice: stated later)

(2) The movement of the tension of the parasympathicus in pathologico-physiological or pathological conditions.

In this condition again the tension of the parasympathicus would be increased in general and the manner of increasing is subject to the physiological condition.

In the case of a child, among the parasympathicus, the tension of secretory nerve, dilatator nerve of the blood vessels, and inhibitory nerve of the heart, as formerly stated, is higher.

Needless to say, this would be more highly shown in the pathologico-physiological or pathological condition. Though the tension of contractile nerve of the smooth muscles would, more or less, be increased, but that is far lower than the above-said three. So, the allergies of child is apt to happen in a type of diseases with slight shrinks of the smooth muscles and with a remarkable symptom of skin and mucosa, for instance, in eczema, urticaria; and as for asthma, generally speaking, a child's asthma is apt to be in a type of asthmatic bronchitis. The allergies of grown-ups have, generally speaking, the contrary relation.

In other words, the grown-up's allergies are rather due to the strong shrinkage of the smooth muscles, and mucosa-symptom and secretion therewith is more or less slighter than the former.

Even concerning the child, however, in individual innately possessing a tendency to the quick increase of the tension of contractile nerve of the parasympathicus, like a child from the family of strong asthma heredity, we can find some case of the similar movement of parasympathicus to those of grown-ups. And it is well known either that typical asthma same as those of grown-ups, would happen to those children when they contract it.
On the contrary, concerning some individuals, those who innately have a strong tension of dilatator nerve of the blood vessels and secretory nerve have a slight tension of contractile nerve of parasympathicus, and even when they have grown up, as well known, they would contract urticaria, eczema, or asthmatic bronchitis, when allergies happen.

It is a remarkable thing that, even in those two cases, the functions of the parasympathetic nervous system would not be increased at least at the same time.

From the said facts, the nerve not working for the same purpose, and those working for same in the parasympathetic nervous system do not increase their strains in the same degree concurrently: but when the former is increased, the latter would, more or less, be lowered. The reason for this action is that they are inhibited to each other.

When we investigate it from the viewpoint of the tension of the nervous system, we can say that the tension is moving from the former to the latter and from the latter to the former. The above is a co-relation between parasympathicus working for the same purpose and contractile parasympathicus in pathologico-physiological or pathological condition, but it means that this relation cannot always be found among all the organs under the innervation of the contractile parasympathicus.

As I already stated, under the pathologico-physiological or pathological conditions, it is well known that the tension of parasympathicus is locally increased in a certain part of an individual. In this occasion, it is to be noted that the function of parasympathicus in other parts of the individual would lose its independence which would be seen in the physiological condition. In those individuals, when we give a stimulation to some place of the parasympathetic nervous system, the stimulation calls for the excitement of the part with the highest tension of the parasympathetic nervous system of individual, and does not exclusively remain in the stimulated part.

For, these individuals would be influenced of them by every kind of stimulation. However, even in this case, when a fit in the former happens, the tension of the parasympathicus stimulated first would be more or less inhibited. Therefore, inhibitious phenomena of this case has no, regulative meaning in the physiological conditions, but has a rather bad role to fix the disease into the affected part. But even in this case, like the gastral-
gia in a fit of asthma, when the vagus of stomach is very strongly stimulated, the fit of asthma, i.e. the tension of the lungvagus would be mitigated more or less.

But in the case, the patients would suffer from the diseases of stomach instead of asthma. In this respect, in an individual, who has the highest tension of parasympathicus in the affected part, when a stimulation is added to some other part, it would cause an inductive phenomenon or inhibitious phenomenon in accordance with the stimulation added, as you know.

Furthermore, what is interesting is that we can see the inhibitious phenomenon in some other part, even when this inductive phenomenon happens. However, even in this case, if we increase the tension of parasympathicus, v.i., dilatator nerve of the blood vessels, which has the reverse functions with contractile parasympathicus, only the inhibitious phenomenon can be seen and no inductive phenomenon at all. For instance, if an urticaria happens in the fit of asthma, the fit of asthma would be mitigated or vanished.

(3) The movement of the tension of the parasympathicus in allergies.

I shall explain, taking asthma patients as examples. If we press them at the carotid sinus, out of the fit, in most patients (about 90%) the amplitude of respiration used to become large and they at last revealed a stifling feeling, that is, the fit of asthma is induced artificially, and the bradycardia in non-fit time by the carotid sinus cardiac reflex would generally be more stressedly seen than that in the fit.

But the remaining 10% of asthmatic patients, though we press them at the carotid sinus in non-fit time, and even if we examine them with inducing evidence of the inhaling an aquatic acetylcholin (20%), the fit can not be induced. I certified however, that the bradycardia by carotid sinus cardiac reflex can be remarkably seen, in patients being healed from asthma and slightly infected patients of it than in the serious patients of asthma.

So I think you will understand that the tension of the parasympathicus in all parts of the patient would not be lowered, in non-fit time, though the tension of lungvagus is indeed more or less lowered. Only as to the lung and heart, we can reveal that the tension of parasympathicus is removed from lung to heart in the non-fit time.
During a fit of asthma, if it is accompanied by urticaria, the fit would be mitigated or vanished. This is because, on many occasions, it would remarkably lower the tension of lung vagus while at the same time enhancing the tension of the inhibitory nerve of the heart, as the onset of only urticaria, among allergies, has frequently resulted from the increase of the tension of dilator nerve of the blood vessels.

In other words, as you can see from the above, the tension of parasympathicus has removed from lung to the skin and heart. Of course, among patients of urticaria, there are some who have an increased tension of dilator nerve of the blood vessels of the skin, but no increased tension of the inhibitory nerve of the heart: however, those cases are very few in number. This, furthermore, would coincide with the fact that a few of the individual certifying the urticaria and dermographia elevata (urticaria factitia), would cause an asthma fit artificially, when we hold and press the patient at carotid sinus.

This kind of relation, furthermore, we can see in lung and brain, stomach and intestine and so forth. But in this case, we can regard it, I think, as the movement of the tension of the parasympathicus different from relation between the skin and other organ is chiefly effected in the same contractile parasympathicus.

In other words, it shows the fact that, in response to the increase of the tension of contractile parasympathicus in a part, that in other parts would be lowered. The reason for this action is that they inhibit to each other.

In this respect, we can understand that the healing of the allergies is not caused by the overall lowering of the tension of parasympathicus of an individual, but by the movement of the tension of the parasympathicus from the affected part to the other organs or tissues. If we can move the tension of the parasympathicus from the affected part to the skin, namely to its dilator nerve, rather than among the contractile parasympathicus of the same function, the inhibitory nerve of the heart, the dilator nerve of other parts and some of secretory nerve, especially the first, would act cooperatively, and here would occur a decentralizing movement of the tension of the parasympathicus in all parts.

This would be able to limit the concentrating movement to a certain limited part and protect organ other than the skin from the infliction with
the allergies. Here lies one of my logical standpoints of the Asthremedin- treatment concerning the asthma treatment.

(4) **The proof of the movement of parasympathicus by way of pressing carotid sinus.**

Upon examination of the tension of the parasympathicus of the individuals suffering from allergies and their analogous diseases, we find that the tension in the affected part is the strongest and a little lower in other parts. But even in the latter case, the tension of the said nervous system is to be found higher than that in ordinary beings.

When we effect the pressing of carotid sinus to such an individual, generally speaking, it would be irradiated to the most stressed part of the tension of the parasympathicus, and the irradiation on other parts would more or less be inhibited (M. TAKINO). Thus, it is comprehensible that the tension of parasympathicus of the affected part would reflexibly be more stressed than that on other parts. So, the inhibitious phenomenon, we observe here, different from the autonomic nervous system in the physiological condition, would not regulate the function of nervous system, but rather have a significance for the localization of diseases. Here I have a few instances of inhibitious phenomenon in the clinical experiment.

The threshold of stimulation irradiated to the heart and blood vessels by the pressing of carotid sinus is, generally, lower than the threshold of stimulation irradiated to the respiration (lung). But in pathologico-physiological or pathological conditions, for instance, in asthma patients, according to some cases, the threshold irradiated to the lung is lower, that is, the slightest pressing to carotid sinus would irradiate the lung to induce asthma fit. In this case, if a stronger pressing were effected, than the threshold of the stimulation, to irradiate chiefly to the lung, and if, consequently, bradycardia is remarkably expressed, the irradiation to the lung is more or less inhibited. On the contrary, if the asthma fit happens with such a weak pressing as not to express any bradycardia, though a strong pressing is added afterwards, not so expressedly the bradycardia would apper, of course not always, as it did before. This relation can be certified in lung and brain, in patients who are subject to the brain symptom (dizziness) and asthma fit. In such cases, it assuredly is not impro-
bable that the tension of the sympathetic works antagonistically. Mere antagonism between these two nervous systems however, cannot be a satisfactory reason for the phenomena. A better reason for these cases is that, as I have already referred to, in individuals with local parasympathicotonia, an increase of the tension of the sympathetic may often excite indirectly the former nervous system i. e. the parasympathicus, instead of inhibiting it. In this respect, it can be understood that, even when there be a local, reflexive increase in the tension of the parasympathicus, the tension of all other parts, though temporarily, could be more or less inhibited.

Conclusion

Thus far, I have given a brief outline of the experimental ground upon which I have founded my theory on the movement of the tension of the parasympathicus (1949).

This theory in my opinion, not only explain such important problems as

1. The independence of the parasympathicus
2. Onset and healing of the allergies and their analogous diseases
3. Changes of the tension of the parasympathicus by the age not only of the patient but also of the non-patients and by the transition of seasons
4. Pharmacodynamics on the poison of the autonomic nervous system but also has much significance on the regulation mechanism of the autonomic nervous system. This theory thus adds not little to the solution of various open questions on the autonomic nervous system.

Here I shall add a few more paragraphs of my opinion on the latter, i. e., the regulation mechanism of the autonomic nervous system.

Regulation of the autonomic nervous system is partly done by the antagonism between the sympathetic and the parasympathicus.

Generally speaking, the symyathicus in itself, is easily fatigued: this nervous system cannot fully fulfill the regulation of the autonomic nervous system by itself.

To help make the function of the sympathetic or the regulation of the autonomic nervous system effective, the endocrine gland such as suprarenal gland, thyroid gland, etc., collaborates with the sympathetic, especially when the individual is actively working or moving.
Even with such aids from the endocrine glands, however, the regulation of the contractile nerve of the parasympathicus, which is the most important action for the onset of allergies and their analogous diseases, can never be fulfilled satisfactorily enough. For the tension of the sympatheticus has much difficulty in pressing down the tension of the parasympathetic nervous system except for those under the innervation of N. Vagus.

In some organs or tissues, far from being checked, the tension thereof is heightened by the increase of the tension of the sympatheticus.

If therefore, there be some kind of regulation mechanism in between the parasympathetic nerves that function severally, independent of the regulation by the sympatheticus, the very regulation mechanism would make the regulation of the autonomic nervous system complete and that much more easily.

I have succeeded in certifying the existence of such an antagonism working in between the inhibitory nerve of the heart, blood vessel dilator nerve and some of the secretory nerves (belonging to the parasympathicus …… collaboratively with one another) and the contractile nerve (Theory about the regulation of parasympathicus, Takino, 1950).

This mechanism calls for our attention and will surely deserve further efforts when we think that it is, as is above mentioned, such a significant mechanism and that the mechanism itself has heretofore received less attention from the experts and the specialists in this field of medical science.

Literature:

3. Cannon: Lancet 1109 (1930); Amer. J. Physiol. 96: 392 (1931); 104: 557 (1933); 112: 268 (1935); Science (N. Y) 43 (1933); Ann. int. Med. 6: 1022 (1933).