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I.

ON COLD AS A REMEDIAL AGENT.

A Lecture at the Royal Western Hospital.

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SIMPLICITY of means, and judgment for their application, seem to be the two essentials to a *scientific* practice of the healing art. By simplicity of means is not meant fewness of remedies, but a clear and proper knowledge of the principles of their uses. The man who talks of curing all diseases by a few remedies, is but a novice in the practice of physic. This is the simplification of the study, not that of the bedside. Every successful and variously employed practitioner knows the necessity of modifying one medicine by the aid of another, and even, of several. Disease is not exhibited by a single symptom, but by a complication of symptoms; all of which require to be taken into consideration, and to be met by remedial means. Such being the case, it follows that simplicity of means can refer only to the clearness with which the mind views a morbid state, in reference to the matter suited for its relief. Taking this as the view, it may be justly maintained, that many of the most common gifts of the Creator may be most efficacious remedies, and may act as beneficially as the most rare

and valuable natural productions.

The person to whom we are most indebted for the use of COLD as a remedial application, is the late Dr. Currie, of Liverpool, a philosopher whose attention was directed to the subject while studying at Edinburgh, having to prepare an essay on the influence of cold drinks, for a society of which he was a member.

There are different methods under which cold is used as a remedial means. These are cold clothing, cold air, and cold water; these may be applied differently, or modified in different ways. Thus the cold clothing may be of different kinds,—cold flannel, cold linen, cold cotton. The cold air may be breathed into the lungs only, or applied to a part or to the whole of the external surface of the body; the cold water also may be taken internally or applied externally. The extent and the mode of the application may vary,—thus, the water may be applied slowly and partially—slowly and universally—suddenly and partially—suddenly and generally.

In no case is the benefit of cold clothing more commonly experienced, than in the relief of that restlessness which afflicts many individuals in bed so that they cannot sleep. Dr. Franklin recommends, in such a condition of things, to throw off the bed-clothes, walk

about the room, and again get into bed. The clothing is cooled, the body is cooled, and a refreshing sleep is the general consequence.

It is in fever, however, that the efficacy of cold clothing is more peculiarly apparent, in the benefit arising from the frequent change of linen and of bed-clothes; a practice of the utmost importance in a remedial point of view, and so grateful, that whenever an opportunity occurs, and as frequently as is consistent with the debility of the patient, the linen should be changed. Cold linen, blankets being commonly used in addition, is preferable; though cotton is best for clothing in our climate.

This method of applying cold may be called "*vestatio frigida*."

With regard to the application of *cold air*, the method to be adopted is to strip the individual, and allow him to be exposed to the air in the room, or to a current of atmosphere in some open place,—to sit still,—to walk quietly or slowly, as circumstances may dictate. This mode of applying cold has been beneficially employed in some cases of fever. Professor Home cured himself of a febrile affection by this means. The application of cold air may, in cases of fever, be continued as long as grateful; if chilliness come on, the exposure is to cease.

There is one remedial application of cold air highly important, and first noticed by that celebrated surgeon Mr. Pearson, and to which I can add my testimony; it is the benefit of cold air in cases of severe salivation from the use of mercury. I have seen it act almost as a charm.

This medicinal means may be called the "*aërated frigida*," and is now used in smallpox, a disease

in which its use was most violently opposed.

Cold water, however, is the most important method of employing cold as a remedy in disease.

As a general tonic, taken internally, it is one of our best remedies. A glass of cold water taken every morning in small quantities, is very useful in those cases of weak stomach, where languor, a general inactivity and unwillingness to do anything without the stimulus of breakfast, exist.

Soda-water is equally efficacious in relieving the cough connected with irritation and heat at the *velum pendulum palati*, at the upper part of the pharynx, and of the epiglottis; an individual having it in his power, when cough depends on such a cause, to avoid coughing almost entirely by constantly sipping cold water.

It acts as a diuretic, and is hence used in dropsy; the mechanical notion that, as water exists, in dropsical cases, in excess, no more should be added, being expelled by the improved knowledge of physiology, and by the circumstance that thirst exists in dropsical diseases. The benefit is evidenced by the fact that the water passes to the kidneys, brings these organs into increased action, and thus favors the removal of the effused fluid constituting the dropsy.

Cold water is an excellent sudorific, generally, exciting an action on the skin, when taken in *small* but *frequent* doses. Inducing perspiration, it has been introduced as a remedy in fever; and, as thus employed, its praises have been stated by Hippocrates, Galen, and Celsus. Dr. Hancock calls it the "*febrifugum magnum*." In Spain and Italy, cold water was much employed in fever, forming that

part of medical treatment called *diæta aquea*.

The great Boerhaave, biased by his preconceived opinion, that fever depends on a lentor of the blood, opposed the use of this remedy, preferring warm liquids instead. Van Swieten, his commentator, represents cold water as injurious in most cases of fever. Such, gentlemen, is the influence, the blinding influence, of preconceived opinions. It is one of those seven bandages that every man, according to Owen of New Lanark, has over his eyes.

Dr. Franklin, however, showed the benefit of cold water in fever, by having cured himself of fever by the use of it: he gives an account of the same in his writings.

Dr. Currie has done most for the restoration of this useful remedy to its place, and, it may be added, to its *proper* place, among remedial agents.

Not only have hypotheses, but also the well-established injurious consequences of cold water in certain cases, tended to impede the use of this, remedially. But the triteness of the saying does not diminish from its force,—“abuse is not use.” It therefore becomes necessary to discriminate between the circumstances when cold water is useful and when injurious. The following practical rules were laid down by Dr. Currie:—that cold water should not be used in the cold stage of the paroxysm of intermittent fever, since the pulse, by cold drinks, is rendered more frequent, and the coldness is increased;—that it may be used in the hot stage, when that stage is fairly formed, the pulse being thereby lowered, and the heat diminished,—the freedom in the use of the

cold water being guided by the ratio in which the heat is advanced beyond the natural standard. According to Alpicus, the disease is frequently put a stop to by the liberal use of cold water. Dr. Currie further maintains, that it may be used in moderation in the *beginning* of the sweating stage, but not after the perspiration has become copious and profuse. Indeed, the general principle for our guide is this: when there is no sense of chilliness present, when the heat of the surface is *steadily* above what is natural, and when there is no general or profuse perspiration, it is proper.

This principle being understood, it will readily be seen that cold drinks may be used more abundantly in continued fever than in the hot stage of intermittents; and the doubt of the ancients regarding the propriety of the use of cold water in intermittents may be readily understood, when it is taken for granted that they did not know the peculiar circumstances to be attended to in the use of this agent.

This application of cold may be called “*potatio frigida*.”

The most important and the most extensively employed form under which water is remedially used, is the application of cold water *externally*. The methods by which this application is made are two,—*slowly* and *suddenly*; the former being called the “*lavatio frigida*,” the latter the “*affusio frigida*.”

The “*lavatio frigida*” consists in the sponging the body with cold water or with vinegar and water, as circumstances may dictate. Here the application of the water is gradual, and is attended with the most beneficial effects in

many cases of fever. Often, in persons laboring under chronic diseases from some cause or other, the bowels become irregular; febrile symptoms come on; the head, face and hands are very hot, and the unpleasant irritation therewith connected becomes a source of great distress to the patient. This may be almost wholly relieved by the sponging *constantly* the parts most affected by heat with cold vinegar and water, or, which I have found still more beneficial, with a solution of muriate of ammonia in water.

In typhous fever, I have seen this plan attended with the greatest success. Dr. Gregory, of Edinburgh, was a warm advocate of the "*lavatio frigida*" in this fever, finding that even when petechial spots occurred, these formed no obstacle to the use of the remedy.

Superior, however, in medicinal efficacy, to all the modes of applying water, is the "*affusio frigida*," or the sudden pouring of cold water on the body, or the sudden immersion of the body in cold water.

The cold affusion was first scientifically introduced into practice by Dr. Currie, of Liverpool, the gentleman already noticed, and it was after reading a paper by Dr. Wright, in which the benefits arising from the use of cold water, in certain cases of malignant fever, was conspicuously exhibited, inasmuch as affusion—to the use of which Dr. Wright was led by observing that the pains in his limbs, connected with the fever under which he labored, were relieved, when on deck, in proportion to the coldness of the atmosphere in these cases—was

attended with success when all other means had failed.

In the year 1787, a contagious fever appeared in the Liverpool Infirmary. The cold affusion was tried in several cases, and with benefit—indeed with perfect success.

In 1792, the 30th regiment was billeted in Liverpool; the general guard-room belonging to the regiment was ill ventilated and damp; in it some drunken soldiers were confined, and, in consequence, the typhous or gaol fever broke out and spread rapidly. Being arrested by precautionary measures, it was found that fifty-eight soldiers were affected, thirty-two of whom went through the regular course of the fever, and the remaining twenty-six had the disease cut short by the cold affusion. The water of the river Mersey was that used, its temperature being from 58 to 60 deg.

Since this time, the cold affusion has been abundantly and beneficially used in fever; and a striking proof of the benefit connected with the practice is, that the patients, though at first terrified at the thought of having cold water poured upon them, generally express a wish to have the affusion repeated.

It may be proper to notice the circumstances necessary to be attended to in the use of the cold affusion in fever.

The time when the cold affusion is to be used, is when the exacerbation of the fever is at its height, which is generally in the evening; and, used at this time, one particular advantage is gained, namely, that the patient frequently falls into a sound sleep. However, the affusion may be used on any occasion when the heat of the

surface is steadily above the natural standard, and when no chilliness is present.

It is not to be used simply because the *patient's feelings* may indicate that he is hotter than natural; the temperature must be ascertained by the thermometer, placed beneath the tongue or in the axilla. This is the only safe criterion by which the heat can be judged of.

The earlier this remedy be used the better; the solution of the fever being generally effected when used even on the second or third day of the fever, and even sometimes on the fourth; though then, if not effecting a solution, always moderating the severity of the disease.

The same remarks apply to the use of the cold affusion as of cold drinks in the treatment of intermittent fever, being had recourse to in the paroxysm, often cutting the disease short. It is necessary, however, to give medicines in the interval. It has sometimes prevented the approach of the paroxysm, when made use of about an hour before the expected return. Hence the practice, in some parts prevailing, of pushing persons affected with ague unexpectedly into a river.

In smallpox it has been used with benefit; an use which prejudice and preconceived opinion have tried every means to gainsay. It has been objected that the cold affusion has a tendency to drive inwards what nature has driven or is endeavoring to drive out. However, it is a well-established fact, that cool air is highly beneficial and grateful to those laboring under smallpox; and consequently it may, perhaps, hence be justly inferred, that the affu-

sion of cold water may be useful. The fact favors the corollary; since, after the cold affusion, the eruptive fever abates; the delirium, if previously existing, subsides; the pulse is slower; the headach is reduced; the sleep is tranquil. It is a fact, moreover, which should ever be borne in mind, that the eruption is proportioned to the fever; and that, consequently, in diminishing the fever, we diminish the eruption.

In confluent smallpox, however, the cold affusion does not seem so useful, especially after the eruption is complete.

In scarlet fever, the cold affusion has been used in cases with much benefit, wine being generally administered after it. The efflorescence, in some examples, did not take place; a circumstance showing that the disease was cut short. No affection of the throat occurred in these cases.

If asked for an explanation as to the reason why the cold affusion produces such decided effects on fever, the answer will consist of this,—that the same is dependent upon the sudden, general, and powerful impression on the sensations, disturbing the morbid connexions, and exhibiting the truth of that principle, first clearly developed by John Hunter, that no two actions can exist at the same time in the system.

The cold affusion has been used in convulsive diseases, and with much benefit.

Among spasmodically convulsive diseases, tetanus, for severity, danger and extent, holds the most prominent place. The principal remedies for this disease are opium, mercury and wine. The cold bath may now be added to the list. Dr. Wright and Mr.

Cochrane used the bath with success in this disease, in the West Indies. Dr. Currie has a high opinion of its power in idiopathic tetanus, that is, not arising from wounds. The patient should be thrown into the water when under a general convulsion. In several cases where opium had failed, as also mercury, the cold bath succeeded, the muscles becoming more relaxed after each plunge. Hippocrates and Barcenna notice the use of the cold affusion in this disease. This remedial agent must be hailed, by every well-wisher to the human race, as one of the highest importance, and likely to place in our power one of the most untractable of diseases.

In insanity, the cold affusion has been used with success, when the most active measures have failed,—the violence of the delirium being abated, and the symptoms being broken in the chain of their occurrence. As illustrative of the benefit arising from this remedial agent, the fact, well known, that many persons, in the delirium of fever, have thrown themselves into the water, and have recovered from fever immediately afterwards, is worthy of notice. Sir John Chardin was cured in this way.

In the hysteric paroxysm, it is a very efficacious remedy, especially with those young ladies who, when they wish to gain any particular point with their papas, have recourse to the paroxysm of hysteria; the very expectation of the affusion will often prevent the attack of the disease.

In the paroxysm of general convulsion, the cold bath has been used with advantage: the more general the convulsion, the more

beneficial is the application of the remedy.

Several cases of obstinate stricture at the neck of the bladder, in which the influence of opium, bleeding or fomentations was not of any avail, have been cured by dashing cold water on the legs.

Such are some of the many uses of this mode of applying cold; uses so important as to rank this very high among remedial measures.

In concluding, the question may be proposed, How does cold produce these beneficial effects? Cold, by its coldness, may act as a refrigerant directly; and, in this point of view, may do good: but the general influence is dependent upon the effect on the nervous system in giving a shock to the frame, which destroys the succession of morbid phenomena, and thus cuts short the disease. However, it is likely that cold does much more than simply destroy the succession; it may, in addition, have a peculiar influence upon the nervous system; but into this subject an opportunity will be afforded of entering hereafter.

With respect to objections to the use of cold in local inflammatory diseases connected with fever, much might be said; but this subject will be entered upon when treating of warmth as a remedial agent.

II.

On the Prophetic Power said to occur before Death in the Brain Fever.

Few practitioners but have met with instances in which the fatal termination of a disease has been