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THE TREATMENT OF PNEUMONIA.

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THE TREATMENT OF PNEUMONIA.

TWENTY years ago the profession generally held that croupous pneumonia is rarely fatal, except in the aged or in those whose constitutions are weakened by alcoholic or other excess. At that time the doctrine that the disease is a local inflammation of the lung, to which the general disturbance is secondary, was just beginning to give way to the view that the lung process bears much the same relation to pneumonia that the affection of Peyer's patches does to enteric fever. At present there seems to be a disposition on the part of some to return to the local disease doctrine, though, of course, in a different form, and to class pneumonia with diphtheria and erysipelas.

To-day there is certainly a dread of pneumonia among the laity, and, I think, the profession feels less confidence in the power of youth and vigor to withstand the disease than it formerly did. Has pneumonia changed its type in the last fifty or in the last five years? Has the resistance of the population diminished? These are questions which have been often asked. That which first led to their asking was the revolution in treatment, and particularly the abandonment of venesection. We wonder how our predecessors could have bled, purged and puked patients whose every scrap of strength we seek to save. But they also treated consumption antiphlogistically. As far as we can reason from analogy it does not seem probable that the disease has permanently changed character. We do not think that other specific diseases have so changed in this period. If they have changed at all they have become less rather than more fatal.

The valuable paper of Townsend and Coolidge[1] shows that in the Massachusetts General Hospital there has been a marked increase in the mortality from pneumonia; but that this increase, when carefully studied, cannot be attributed to the change in treatment, and probably not to any change in the disease itself.

It seems to me that factors which are very important, but which do not easily lend themselves to statistical inquiry, are the great change in the character of the population, or perhaps still greater change in its manner of life, both poverty and luxury having greatly increased; and the wear and tear of the nervous system incident to modern commercial and domestic methods, which has been multiplied many fold. Cities have grown large. The very poor have a better water now than many of the well to do had in the days of contiguous wells and privies. But it is far otherwise with the air, whether in or outside the house. I must not, however, pursue these questions further, though they have an obvious bearing on therapeutics and its results. And I can only allude to the influence of grippe on pneumonia. The former seems to prepare the way for the latter only indirectly by lowering the resisting power. Influenza thus renders a person more liable to pneumonia, and also probably diminishes his chances of recovery.

Pathology and therapeutics do not always go hand in hand. In some diseases our pathology is ahead of our therapeutics; in others the reverse holds true. We began to treat pneumonia as a general disease before we knew it to be such, and we were convinced that it must be such before we knew of the existence of the diplococcus or toxines and anti-toxines.

The fruit of bacteriological discovery is not yet ripened, though, as we shall see later, there is reason to hope that ripening may be in process.

[1] Transactions of the American Climatological Association, 1889.

As far as prophylaxis goes we cannot as yet accomplish much. We can caution convalescents from other and milder affections, especially during the season to which experience shows us pneumonia is most incident. We can warn our patients at these seasons not to treat lightly severe colds. We can "preach the gospel of hygienic righteousness," as the late Dr. George Derby put it.

No method of aborting the disease which has yet been proposed has made good its claims. Pneumonia, like typhoid fever, may abort spontaneously. But we cannot make it do so. Still, it seems to me that the method of Pétresco of Bucharest[1] is worthy of trial. Since 1883 he has treated 755 cases of pneumonia with very large doses of digitalis from the time they first came under observation. He gives for two or three days a strong infusion, and claims to be able to cut early cases short, and to influence very favorably more advanced cases. His mortality now is only 1.22 per cent. He gives from one to two drams of the leaves daily, the equivalent of one to two ounces of our tincture. In like manner we have had no distinctly curative treatment, though we are encouraged to hope that the injection of immune blood serum may prove to be such after further trial. In short, our efforts are at present confined to promoting the comfort of the patient, and conserving his forces in every way to enable him to outlive the self-limited disease. This in itself may be much.

For the better application of this general principle it will be more convenient to divide the disease into stages, remembering always that these divisions are arbitrary, and that nature does not seem to feel herself bound strictly to abide by them. Patients very rarely succumb to the stage of invasion or preliminary congestion of the lung with active implication of the pleura. The danger here is not of dying; it is rather of loss of strength, which may be sorely needed

[1] Bull. de Thérapeutique, 1892, p. 120.

later. The indication, therefore, in the ordinary case is to relieve the pain, to put the patient to bed and freely open the bowels, just as the mariner prepares his ship for an impending hurricane. The severity of the pain and any known or ascertainable peculiarity of the patient will decide the character and amount of the means for its relief. In the early days, at least, there can be no question of the safety of morphine, which should be used freely and frequently, hypodermically. Restlessness and an excited nervous system call for morphia nearly as loudly as does pain. Dyspnœa in the average case is at this stage due far more to the pleuritic pain than to the state of the lung. But now and then we see a case in which so much lung tissue is so rapidly invaded that the heart finds it difficult to adjust itself to the changed condition, and greatly oppressed breathing results. In such a case nothing gives such prompt relief as venesection, the freedom of which is to be proportioned to the age and vigor of the patient and its effect on the symptoms. With the veratrum viride treatment of the Philadelphia school I have no personal experience. If internal antipyretics are to be used at all in pneumonia it is only during the first stage that they are admissible. I am no friend of them myself, and never use them in this disease. Even the best of them is somewhat depressing to the heart.

During the prevalence of the old doctrine of the nature of pneumonia and of inflammation, treatment was naturally addressed to the diseased organ, and antiphlogistics were used externally and internally. We now recognize the fact — or believe it to be a fact — that the cause of death in the second stage is rarely asphyxia as a result of the amount of lung involved. The loss of function of a portion of the lung plays in most cases a rôle which is quite subordinate to that of cardiac exhaustion, dependent probably on the influence of toxines on the innervation of the heart rather

than on changes in the myocardium. That it is mainly a toxæmia which weakens the heart and not simply the mechanically increased resistance in the right chambers, seems to be proved by the great fall in the pulse, as well as the breathing, coincident with crisis, although the physical signs over the affected lung area may show no appreciable change.

It is then the maintenance of nerve force which we must try to secure. This means the avoidance of every unnecessary fatigue and the administration of the largest amount of the most nutritious liquid food which can be digested, with free ventilation of the apartment. It seems to me that the poultice and the envelopment of the chest in cotton or wool are relics of the old pathology. The poultice is the worse, as its frequent change involves notable fatigue and its weight is not insignificant. I have no experience with the application of ice, which seems to be gaining favor in this country after long use in Germany, to which country we are more apt to look for pathological than for empirical therapeutic suggestion. With regard to food and feeding I do not propose to go into any detail. But I do want to enter a plea for greater freedom of ventilation than is generally allowed. Here again the old pathology seems to me still to influence the medical as well as the lay mind. I am convinced that courage in facing popular prejudice against cold air, and less reverence for the seventieth degree of the thermometer would subserve the interests of our patients and diminish the bills for oxygen. If I should be so unfortunate as to contract pneumonia I trust that my doctor will put me in a sunny room and give me the benefit of a combination of open fire and open window. It is not pleasant to be accused justly or unjustly of killing our patients, and I must plead guilty, I fear, to a lack of the full courage of my convictions on this point. In the case of a very rich man whom I saw repeatedly in consultation last winter, and who

wished no expense to be spared, I soon found that it was useless to try to get a window open. Nor did I succeed in getting even an open fire. But cylinder after cylinder of oxygen was breathed with avidity.

The use of morphia in the first stage has been already touched upon. Experience is leading me to think that it should be used more freely in the second stage than is customary. Here it is not called for by pain so much as by restlessness, cough and sleeplessness. In any given case we must try to estimate the proportion of danger from respiratory failure. The smaller this danger the more freely can we use morphia, which will do more good in resting the nervous system than harm in other ways. And even in cases where the danger of respiratory failure cannot be disregarded, but morphia is indicated on other grounds, I believe that the inhalation of oxygen enables us to give morphia when we might otherwise feel compelled to withhold it. With oxygen of late years I have had considerable experience. I have seen it given freely and without regard to expense. But I can recall only one case in which I feel reasonably convinced that it saved life — that of a Harvard student whom I saw with Dr. Hildreth. Even here we had to deal with a patient whose age should have ensured his recovery according to the books. In many cases I have seen it give marked relief. Our expererience with this gas is now sufficient to enable us to estimate its value better and to use it more intelligently than a few years ago. Physiologists kept it out of use longer than we should have allowed them to do, telling us that the consumption of oxygen is no greater when the pure gas is inhaled than it is under ordinary conditions. Even if this is true of the well, it does not follow that it is also true of the sick. I suppose to-day clinicians are agreed that oxygen may be useful when a sufficient amount of air to arterialize the blood is prevented from reaching the alveoli, a condition which is present in some cases of pneu-

monia as the result of excessive secretion in the bronchial tubes in combination with the lung consolidation. Cyanosis is therefore the best single indication for oxygen. In such cases it should be used early and as freely as the purse of the patient will allow. Unfortunately it is still a very expensive remedy. But it is my feeling that its usefulness is wider than would appear from the above. I think I have seen refreshment, quieter respiration, a fuller pulse, and diminished restlessness, perhaps sleep, follow oxygen, even where cyanosis was absent or slight. I have asked myself the question whether the gas may perhaps act as an aid in the combustion of toxines, all compounds of unstable character I believe. The other chief means of stimulating the flagging heart, as reflected in the pulse and the character of the sounds, are alcohol, strychnine, cocaine, digitalis, and other heart tonics. I shall not delay to speak further of alcohol, as I think we are all pretty well agreed as to its usefulness and the indications for its employment. Strychnia has grown in favor of late years, and I think justly. It is best given hypodermically, and, in severe cases, to the limit of toleration — $\frac{1}{20}$ – $\frac{1}{40}$ of a grain every three or four hours. H. C. Wood speaks highly of cocaine as an adjuvant to strychnia.

All writers advise and all practitioners use digitalis or one of its congeners if there are any indications of a failing heart. I have so used it constantly, but must confess that I do not feel perfectly clear as to its usefulness as it is ordinarily given. Perhaps we do not use it in large enough doses. I am sure that we should use it hypodermically more than we do. I have this year seen prompt and distinct effect in several cases follow hypodermics of thirty minims of the tincture. Pétresco's results are confirmatory of the idea that our doses of digitalis are often insufficient. An editorial writer in the Therapeutic Gazette, in 1892, in speaking of Pétresco's paper, which he evidently did not

read with care, thinks that pneumonia must be a different disease in Roumania from that which we see, and that the digitalis must be of poor quality. The first supposition is highly improbable, and Pétresco has anticipated and answered the second. He notes repeatedly a pulse rate of 36 to 48 within thirty-six to seventy-two hours after the digitalis is begun, and has supplied himself from the best houses in Paris and Berlin as well as from native sources.

With the cold bath and cold wet pack as remedies against high fever, delirium, and other nervous symptoms, I have no personal acquaintance. A period of the disease which we all recognize as one of much danger in some cases is that immediately following the crisis. Exhaustion or collapse at this time calls for rapid stimulation; alcohol and ammonia internally, heat to the surface, brandy and ether under the skin.

In cases terminating by lysis, and in delayed resolution a supporting treatment is to be carried out according to the indications presented by the case in hand. The frequency of empyema as a sequel to pneumonia is never to be forgotten, if for no other than a therapeutic reason.

Lépine[1] has recently employed with success injections into the thighs or arms of oil of turpentine, when he feared that grey was passing over into yellow hepatization. Fochier first suggested and practised this method in puerperal septicæmia, having noticed that improvement took place when a focus of pus was established. The turpentine produces an abscess — "of fixation," Fochier terms it — which can be opened later. Dieulafoy and Bard[2] have each practised this method in pneumonia, with recovery in both cases. Others in France have also used it a few times, but I have not been able to get access to the journals in which the reports appeared.

[1] La Semaine Médicale, 1892, p. 77.

[2] Lyon Médicale, 1892, p. 533.

In three desperate cases in my service at the Massachusetts Hospital this winter I had turpentine injected, in one case on the 9th, in two on the 7th day of the disease. All three died, as seemed certain that they would, whatever was done or not done. I do not think that these cases should really count for or against the method.

For therapeutic purposes cases of pneumonia may be divided into three classes. First in frequency are those cases which will recover under any treatment or no treatment, unless they are grossly mismanaged; second, those which will die in spite of any and all treatment known at present; third, those in which judicious treatment may turn the scale.

Our object is constantly to strive to enlarge the third class at the expense of the second. Thus far, our efforts have been unsuccessful enough, it must be admitted. But, however skeptical we may be, we should not be hopeless, or refuse to listen to those who bring forward new methods with an underlying basis of reason and fact. One method of curative treatment has been recently introduced which can claim an encouraging though limited success in practice, as well as foundation in analogy—with tetanus, for instance. Only one case has been reported thus treated in this country, but it would seem our duty to lose no further time, and I propose to test the method in my wards next autumn and winter.

I refer to the injection of blood serum from a human being who has recently passed the crisis of pneumonia, or blood serum or fluid derived from animals rendered immune to experimental pneumonia by the injection of pneumococcus cultures. I will not take your time by going into the details of this method and its technique. The articles of the Klemperers,[1] and others in Germany and Italy who have tried

[1] Berliner Klin. Wochen., 1891, p. 833, and Wiener Med. Wochen., 1892, No. 22, Niesser; Deutsch. Med. Wochen., 1892, p. 593. Lara; Wien. Med. Wochen., 1893, No. 12. Bozzolo, ibid.

it are accessible enough. Suffice it to say that the purpose is to induce the crisis artificially, and that of thirty-nine cases thus treated, collected for me from literature by Dr. R. C. Cabot, all save one recovered. Whether the pneumotoxin and antipneumotoxin theory of its mode of action is final or not, remains to be seen. In the sole American case[1] defebrinated blood was used with results which do not encourage a second trial.

[1] Hughes and Carter, Therapeutic Gazette, October, 1892.