GENERAL PRINCIPLES IN THE TREATMENT OF INFLUENZA,

WITH SOME DETAILS APPROPRIATE TO TYPES OF CASES OCCURRING IN THE PRESENT EPIDEMIC.

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THE treatment of influenza by specific inoculation, by immune sera, and by specific drugs is very much a matter of *tot homines tot sententiae*. Time alone can adjudicate upon the claims made for a variety of remedies that are on trial during the present epidemic. I am not here concerned with any discussion or advocacy of these measures. More important for the time being, probably, than any one or any number of them is the promptness with which the general conduct of the case is established and the thoroughness with which it is carried out. Not only may these things be of vital importance to the individual patient, they are also of great importance to the uninfected public. *Every case of the disease treated upon sound general principles is a contribution to preventive medicine.* And every case in which these principles are neglected is a threat to public safety. In so far as the individual case is concerned, promptness and thoroughness do more than meet the actual indications of the moment; they give the patient confidence that he will "win through," and they often prevent by anticipation those dread complications, shorn of which the disease is not really alarming in its nature. The treatment of influenza, despite specific efforts at aborting the course of the disease, must be regarded as an "expectant" treatment. But in medicine expectancy should not connote inactivity nor an attitude of "wait and see." The line of treatment advocated in this short article claims no originality. It is merely an attempt to put in writing the actual plan of campaign resulting from an individual experience gained entirely at the bedside of a considerable number of patients, concerning whose treatment the writer has deliberated jointly with a number of colleagues. It is obviously open to much criticism, but it may be useful to some, not because their experience has been less, but because they may like to know the practice of someone else and compare it with their own. The dogmatic mode of setting down some of the points in the scheme of treatment is adopted merely for the sake of brevity and precision.

With the mild cases and, whether mild or not, with the cases running a brief and favourable course of two or three days, I shall not concern myself. Inasmuch as no one can possibly foretell which cases are going to follow this benign course, the treatment of the more severe type covers them. And it is well to enforce the warning that wisdom lies in considering any case at its period of invasion potentially a severe one, not to say potentially a desperate one. If this principle were followed, both by the patient before he seeks advice and by the doctor after he has first given it, the disease would lose much of its terrors. Handicapped as the practitioner is just now by great dearth of efficient nurses, and overloaded himself by work owing to the paucity of doctors left in charge of civilian practice, it must needs be that treatment is much less adequate than is desirable. It is all the more important to give precise directions to the friends, and to such nurses as may be available, including definite instructions as to what they should *not* do. I shall consider the principles of treatment and some details under four heads which are, I think, sufficiently clear not to require explanation.

(i.) *Severe Cases without Pulmonary or other Serious Complications.*

With the first symptoms of the disease order the patient to bed and keep him there until a week after his temperature has become normal, and only allow him to get up then if examination of the heart and lungs reveals no signs of disease. Choose the largest available room that is provided with good-sized windows and clear out of it all superfluous furniture. If the patient is found to have gone to bed in a very small room and a larger room near by can be used as the sick-room move him into the latter as soon as possible. Open the windows widely day and night, bad atmospheric conditions notwithstanding. Dispense with blinds and curtains. Disregard "light restrictions." Fortunately the authorities

have now waived these. Despite this fact, however—so hard a thing is habit—it is quite common to find the benefits of an open window largely neutralised by a blind, and perhaps by a heavy curtain as well. Regard all screens with distrust, and arrange the bed near the centre of the room, far away from all cul-de-sacs. Aim at a room temperature of 60° F., obtained by an open fire if central heating is not employed. If the ideal of free ventilation with warmth cannot be secured, then warmth must be sacrificed rather than ventilation. *Not only does the neglect of proper aërotherapy seriously prejudice recovery in the event of pulmonary complications, it undoubtedly tends much to induce these. It is the most important point in the treatment of all cases.* Adjust the bed-clothes to the patient's temperature. Use sheets and blankets only; disallow down quilts and counterpanes; it is wise not to tempt the nurse or friends by leaving such things in the room.

Confine the diet to hot fluids, given frequently, and do not aim at "feeding up" the patient. Avoid meat extracts and strong broths. Thank the friends for their offers of turtle soup, advise acceptance of the gift, but keep it in reserve for the period of convalescence. Do not give alcohol during this early stage of the disease; in a simple febrile attack it is not required at all unless the patient is elderly. See that the bowels are well opened by a double dose of the patient's customary aperient; if he has none, give calomel gr. $\frac{1}{4}$ every hour for four doses and follow this by a hot saline. Sponge the patient all over with warm water twice daily. Put no faith in drugs as specific measures, whether quinine, salicin, or what not. Give aspirin and Dover's powder, āā gr. x., as early as possible, and repeat in six or eight hours. Follow this by a simple diaphoretic mixture. If headache is severe in spite of this treatment, give phenacetin gr. v. with caffeine gr. ii. four-hourly for four doses. If the stomach gives trouble and the tongue is foul, order sod. bicarb. and sod. sulphocarb., āā gr. x., with glycer. acid. carbol. m x. and aq. menth. pip. ad $\mathfrak{z}$ i. six-hourly, and be sure that the feeds are well diluted. For vomiting, when this is a feature of the case, reduce all feeds to a minimum, or abstain from them altogether for 48 hours, give minim doses of tr. iodi in one drachm of water hourly for six doses, and inject a pint of normal saline into the rectum twice or three times during the period of starvation.

The distressing and oftentimes ceaseless cough is generally the most difficult problem. A host of remedies is in use; the fact that they are legion is the best proof that none of them is very useful. Do not forget that local applications to the chest (*vide* (ii.)) are often of service in allaying cough. Remember also that when the origin of the cough is irritability of the upper air-passages inhalations of tr. benzoini co. (4 parts) with menthol or eucalyptus (1 part) are useful. Failing this a spray containing chloretone and menthol, āā 2 per cent., in liquid paraffin, may be used to the nose and throat. But these local measures are of little avail in the essential cough of the disease. I have found syr. coccillanæ co., syr. codeinæ, and linct. terp. heroin co. of some value. In the most intractable cases I prescribe syr. chloral $\mathfrak{z}$ ss., ammon. brom. gr. x., ext. glycyrrhiz. liq. m xx., &c., four-hourly for four doses.

Sleeplessness calls first of all for a general review of the programme of treatment: ventilation of the room, control of pyrexia, posture in bed, the question of stimulants, &c. If none of these points seems capable of better adjustment, try a sedative draught containing ammon. brom. gr. xx. and tr. valerian. ammon. m xx. If not successful, I use paraldehyde in drachm doses twice or three times during the night to secure a good sleep. The best cloak for its unpleasant taste is tr. quillaiæ and tr. aurantii āā m xx. with water to one ounce. If vomiting is present, give the paraldehyde $\mathfrak{z}$ ii. in normal saline solution $\mathfrak{z}$ ii. as a rectal injection. As a last resort I use chloral hydrate gr. xx. (with ammon. brom.), believing it to be of less prejudice to the heart than any members of the veronal group and more efficacious than either trional or sulphonal. I avoid morphia for the treatment of sleeplessness or delirium; and the result of hyoscine, upon the only occasion I saw it used for the control of these troubles, was such as to put the drug wholly out of court as a therapeutic agent of service in this disease.

If, now, defervescence takes place, by crisis or by lysis, further treatment resolves itself into taking care to avoid relapse and into measures designed to restore nerve and heart

strength. These will not be discussed here. But there are two other possible types of case, over and above (i.), both of which tax the practitioner to the utmost. In some cases the two types are superimposed.

(ii.) *Intensely "Toxic" Cases, Tending to, or Actually Exhibiting, Hyperpyrexia.*

All the emphasis laid upon free ventilation must now be redoubled. Cradle the patient, as was formerly customary in typhoid fever with persistently high temperature. Failing this, insist upon very little bedclothes. Remember, and teach the nurse or friends, that the thermometer, and not the patient's sensations, is the true guide to the amount of bedclothes and the presence or absence of hot-water bottles. Sponge the whole body frequently with tepid water, and if the temperature is unaffected by this, use water at room temperature, or cooled below this point. Prevent the piling on of blankets after the sponging, because it is during the first hour or two after the sponging that the chief fall in the temperature occurs. Even good nurses often fail to understand this, and will complain that the sponging was ineffectual, the while one finds the patient's complaint of chilliness has led to the use of several blankets and some hot-water bottles. Should the temperature be obstinate yet—and in every case where it is 106° or higher—proceed direct to the cold pack, which must, if necessary, be prepared with ice-cold water, and repeated as often as is indicated by the thermometer. Do not fear "shock to the heart"; there is probably no shock to the heart so great as a continued state of hyperpyrexia. Even if pulmonary congestion is present, which, indeed, it usually is in all these severe cases, this treatment is not contra-indicated. Hot drinks are given frequently during these processes, and volatile stimulants, including brandy or whisky. *Aspirin and all so-called febrifuge drugs must be rigidly excluded from the treatment during this phase of the disease.* Perseverance with these hydro-therapeutic measures, whose virtues have unfortunately been lost sight of to a great extent by the present generation of practitioners, will often be rewarded by great improvement in the facies, pulse, and nerve tone of the patient; it is certain that one of the gravest dangers in the disease may be largely averted by their means. Most of these cases require brandy or whisky to counteract circulatory failure, and nearly always they suffer from troublesome insomnia, which should be met as advised under (i.). Should the state of the heart give anxiety, the measures referred to under (iii.) in connexion with this organ must be resorted to. This type of influenza, occurring quite frequently during the present epidemic, responds in most encouraging fashion to prompt and careful handling.

(iii.) *The Pulmonary Type.*

The treatment of those complications of influenza which affect the respiratory organs—catarrh of the upper respiratory tract, bronchitis, lobar pneumonia, and pleurisy—follows in the main the usual practice when these diseases occur independently of influenza. By the "pulmonary type" of case I mean that class of patients in whom there develops quite early in the disease, even from the invasion stage in fulminating cases, intense acute congestion of the bases of the lungs, with cyanosis, persistent cough, the spitting of pinkish frothy mucus (it may be in large quantity), and cardiac embarrassment. So soon as the beginning of this trouble is detected it is well to use large local applications which combine moist heat with counter-irritation. If nursing help is available nothing is better than linseed meal and mustard poultices (linseed meal 8 parts, mustard 1 part), renewed every four to six hours until the skin is reddened. Choose the most congested part for the application, but ensure freedom of respiration by avoiding tight bandaging. Antiphlogistine is also good, as are equivalent preparations now obtainable at the chemists. The well-known Gamgee jacket thoroughly deserves its popularity, and, if properly made and fitted, it enables the patient to remain in a full current of air without fear of "chills." Requiring less skill than poultices, but not to be despised, are stimulating liniments, like camphor, chloroform, and turpentine, diluted with an equal quantity of oil, and used liberally. Do not wait for the arrival of signs of consolidation of the lung before embarking upon these local measures. In this type of case volatile stimulants, sedative expectorants, and diaphoretics are the most helpful drugs. Such are sp. ætheris co., the iodides in small amount, bromide and chloride of ammonium, tr. senegæ, tr. bella-

donnæ, and liq. ammon. acetatis. Avoid drugs that are apt to be depressing, such as antimony and ipecachuana. In most of these cases brandy or whisky is indicated in small and periodic doses. All feeds must be warm, despite the desire that patients sometimes show for cold drinks and for ice. The use of ammon. carb. is a vexed point; in any but small doses it sometimes tends to increase cough, and when there are little or no sputa the drug is of doubtful value. The treatment of cough has been considered already (*vide* (i.)). Oxygen should be given in all severe cases of this type of the disease, warmed by passage through hot water or alcohol.

The condition of the heart must be estimated more by the general state of the patient (facies, cyanosis, dyspnoea, delirium, posture) than by the pulse frequency. If unsatisfactory the volatile stimulants already employed must be supplemented by strychnine (gr. 1/30) and by camphor in oil (gr. iii. in 15 minims), injected alternately, the former subcutaneously, the latter intramuscularly, every six, four, or even two hours, according to the severity of the condition. If still further supplementary measures are needed the best appears to be strophanthin, gr. 1/500 in 15-20 minims of sterile normal saline solution, injected slowly into a vein of the ante-cubital fossa. This may be repeated in 8-12 hours.

In both of these severe types of the disease, (ii.) and (iii.), reliance must not be placed upon aperients to ensure good evacuation of the bowels. Enemata should be used daily, with as little disturbance of the patient as possible, and avoiding injections of large bulk. In this way the intestine, often in a state of paresis, is cleared of much toxic material and the patient's heart is relieved from the strain of an ordinary stool.

(iv.) *The Stage of Exhaustion.*

The fever having subsided and the acute symptoms passed, there is seen in many cases a state of extreme cardiac and nervous fatigue. This state requires great caution. If the patient attempts to overcome the condition by effort he risks either a relapse of his disease or an attack of heart failure, either of which may be very serious. Strict recumbency, perseverance with stimulants, and gradual increase in the quantity and quality of the food are the only measures needed to ensure complete recovery; at least, so far as the dangers of the disease are concerned. For even in the cases of extreme bradycardia that are occasionally seen (and the writer has met with a pulse of 30 persisting for five days in a boy of 17 years) the prognosis does not appear to be other than favourable.

THE INCIDENCE OF *BACILLUS INFLUENZÆ* (PFEIFFER) IN THE PRESENT INFLUENZA EPIDEMIC.

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SINCE the discovery of the bacillus of influenza by Pfeiffer in 1892, towards the end of the 1889-92 panepidemic, there has been a considerable amount of discussion as to whether this bacillus is or is not the etiological agent of acute influenza. This controversy has continued during the present epidemic owing to the failure to demonstrate the organism in typical cases.

Cause of Conflicting Results.

An able and elaborate review of the investigations in this direction has appeared in the Medical Supplement to the *Daily Review of the Foreign Press* for October, 1918,¹ which clearly shows the widespread failure to demonstrate the bacillus of Pfeiffer with any degree of constancy. In fact, so numerous have been the failures that grave doubts are cast on the part played by the influenza bacillus as the causative agent of the present epidemic. Out of a large number of workers few found the bacillus with any degree of constancy. Matthews,² however, isolated the bacillus in every case (12) examined; Dietrich found it in his first seven post-mortem examinations; Bergmann isolated it in 15 out of 20 sputa examined. Since the above review was written, however, Eyre and Lowe³

* Working on behalf of the Medical Research Committee.

¹ Medical Supplement (compiled by the Medical Research Committee) to the *Daily Review of the Foreign Press*, Oct. 1st, 1918.

² THE LANCET, July 27th, 1918. ³ THE LANCET, Oct. 12th, 1918.