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TREATMENT OF PULMONARY TUBERCULOSIS WITH ICHTHYOL

BY

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Read at The National Tuberculosis Conference in London, February 17th, 1909.

> TORQUAY: "DIRECTORY" OFFICE, FLEET STREET,

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TREATMENT OF PULMONARY TUBERCULOSIS WITH ICHTHYOL.

IN response to the kind invitation to read a paper before the Members of the National Tuberculosis Conference, I have tabulated the results of treatment of 123 patients (at the "Western Hospital for Incipient Consumption," Torquay) by means of the Ichthyo-sulphonate of Ammonium, popularly known as Ichthyol.

Of the 165 cases I have had under my care in the Western Hospital since I first adopted the treatment, in October, 1901, 123 have been treated with Ichthyol, and those which have not been so treated have been patients so slightly affected that very little more than good food and open-air treatment has seemed necessary.

The Western Hospital at Torquay is, I believe, the first Hospital established in Europe for treatment of pulmonary consumption in its early stages, to the exclusion of all other diseases of the chest. It was founded in 1850 by the late Hon. Mrs. Powys KECK, who established it with the laudable desire of affording to the labouring classes, on a limited scale, advantages similar to those enjoyed by their wealthier fellow creatures: of passing the winter months in a climate so well calculated to prevent chest complaints and incipient affections of the lungs from degenerating into confirmed consumption, as that of Torquay.

Accommodation is afforded for forty patients (twenty men and twenty women). Those only are admitted whose cases appear to the Medical Staff to warrant the belief that, if not absolutely curable, they may be more or less permanently benefited and restored to a condition of usefulness, under such favourable surroundings as to air, food, lodging, and Medical treatment, as the Hospital affords. The Hospital is situated on a hill about 250 feet above sea level, it faces due south, and is protected from the north and east by a hill at the back, covered with pine trees, amongst which the patients can wander at their will. I mention these facts, because, although the title of my paper is "Treatment with Ichthyol," I cannot but recognise the fact that patients having the advantage of a climate such as that of Torquay, should naturally shew better results than those treated in the smoke and fog of London and other big cities, during a winter of such severity as that through which we are

of Torquay, should naturally shew better results than those treated in the smoke and fog of London and other big cities, during a winter of such severity as that through which we are passing. On this point I cannot but direct your attention to the paragraph in last week's Lancet, entitled "January at home and abroad," from which it appears that the Scilly Isles were much warmer than Nice and Biarritz, and rather warmer and Genoa, while Torquay and Sandown than Naples enjoyed a temperature very little lower than that at the two Southern French towns mentioned. In the matter of actual warmth, the extreme South-West and South of these islands compared remarkably well with some of the resorts in the far South of Europe. Torquay, with a mean temperature of 42.2, may be compared with Florence, with under 40 degrees, the rainfall being about equal in both places. Comfort and health, no less than patriotism, therefore, should lead the public to visit the Devonshire and Cornish winter resorts rather than French or Italian stations, which can offer no greater warmth.

In a letter I received from Professor DIXON, of Philadelphia, in 1891, with reference to treatment by Tuberculin, he says, "I cannot help thinking that climatic influences have a good deal to do in helping forward or retarding the Treatment. Torquay would seem to be a very favourable climate for tuberculous patients."

As there are lay, as well as medical, Members of this Conference, it might be well to say that Ammonium ichthosulphonate consists of Ammonium salts of the Sulphonic acids, prepared from ichthyol-the oily product of the destructive distillation of a greyish bituminous schist (" oelstein " or "stinkstein") found in the Karwendel Mountains which separate Bavaria from the Tyrol, the bulk of the crude oil, or ichthyol, being produced in the vicinity of the village of Seefeld. The schist is composed largely of the remains of fishes and other marine creatures, and yields from 1 to 10 per cent. of sulphur. On treating the oil with sulphuric acid, ichthosulphonic acid is formed, and this, when neutralised with ammonia, yields impure ammonium ichthosulphonate, the substance which is known in commerce under various trivial names. It occurs as a blackish brown, viscid liquid, with a powerful and characteristic odour. Dried on a water bath it loses half its weight. It is entirely soluble in water, partly soluble in alcohol and ether, entirely in a mixture of equal parts of alcohol and ether. It mixes with glycerine and oils.

Ichthyol has now been successfully employed for several years in the treatment of Tuberculosis. Although any direct action of the remedy on the germs of the disease may be considered excluded, it has been proved by numerous trials that the internal administration of Ichthyol promotes nutrition, retards the waste of albumen, stimulates digestion, and increases the appetite, thus altogether raising the strength of the patient and renovating the powers of resistance of the enfeebled organism.

Ichthyol has a reducing action on tissues and is antiphlogistic, analgesic, and antiseptic, having a direct influence upon pathogenic bacteria, especially the streptococcus and diphtheria bacillus. Internally it improves digestion, increases appetite, and regulates the bowels.

Writing in 1898, Dr. MORITZ COHN regards Ichthyol as being of use in increasing the strength of the organism and placing it in a position to carry on a successful warfare against the bacilli. He states that in advanced cases improvement often follows when cod liver oil and creosote have failed. It possesses the advantage over cod liver oil that it can be given in summer as well as in winter, and over creosote that it is harmless in large doses. For poor people its cost recommends it. It can be given in 2 to 50 drops thrice daily before meals, of the mixture of equal parts of the drug and distilled water, diluted with water, followed by black coffee or lemonade. The best mode of administration is in the form of capsules, 5 to 30 grains daily.

In 1899, Dr. HEINRICH FRAENKEL reports from his observations upon thirty patients that the cough was lessened, the expectoration diminished both in consistency and amount, and was expelled with greater ease, the night sweating ceased, the general condition improved. The preparation employed is equal parts of ichthyol (pure ammonium sulpho-ichthyolate) and distilled water, of which 20 to 40 drops are given four times daily. To correct the taste a few drops of oil of peppermint are added to the dose, which is taken in a full glass of water before meals. The odour and taste may cause nausea and vomiting in sensitive individuals, but without producing irritation of the stomach, so that in this case it should be given in gelatine capsules.

Dr. BRANTHORNE also reports favourably of Ichthyol and believes that its action is similar to creosote, but not so irritating to the stomach. He recommends an alcoholic solution, viz., Ichthyol $2\frac{1}{2}$ drachms, alcohol (65 per cent. solution) 6 drachms. Of this mixture 30 drops are given in water several times a day. The dose is gradually increased 2 drops a day until 150 drops are taken, when the ascending doses are stopped.

WERTHEIMER strongly recommends Ichthyol internally for Phthisis. After taking for eight or ten days, or in advanced cases perhaps longer, cough and expectoration diminish, the temperature becomes and remains normal, the appetite slowly but steadily improves, and the patients gain in weight. The last effect is almost constant, and is what the patients themselves notice most. Those who use Ichthyol will find the necessity for morphine and atropine becomes more and more rare. It is best given mixed with equal parts of distilled water, of which one to two drops should be given in a liqueur glass of water, three times a day, after meals. The dose is gradually increased to 10 drops, three times a day. Epigastric weight or pain is a sign that the maximum dose for the individual has been exceeded.

Dr. E. STUBBERT reports having used Ichthyol in the form of enteric pills, with very satisfactory results, 5 grains three to four times a day. The remedy appears to be indicated, not only in Pulmonary Tuberculosis but also in cases involving the intestines and genito-urinary tract. Very large doses of the preparation can be tolerated by most patients, and, without any gastric disturbance ensuing, as much as 60 grains daily may be taken in some cases.

I first commenced treating my patients with Ichthyol in October, 1901, and, of the 123 cases treated since then, the disease was arrested in 29, 47 were very much improved, 12 much improved, 18 improved, 5 were incurable, 2 unsuitable, 5 unimproved, 1 died, and 4 are still in the Hospital doing well.

In 66 cases both lungs were affected; in 21 the right lung only; in 7 the left lung only; in 14 the right was decidedly affected, with slight impairment of respiratory murmur on the left; and in 15 the left was decidedly affected, with slight impairment of respiration on the right.

The ages of the patients varied from 15 to 50, but the greater number were between 18 and 30 years of age, and the proportion of males and females pretty equally divided.

The average length of time the patients remained in the Hospital was three months, it being a rule that no patient should remain longer than four months, except by special recommendation of the physician in charge. I believe, however, that very few Hospitals for Consumption keep their patients longer than two months, as a rule. The patient who died, succumbed to tubercular meningitis, which came on a month after his admission, and terminated fatally in ten days. As soon as the brain symptoms developed, the Ichthyol was discontinued, and a mixture containing bromide and iodide of potassium substituted.

The five discharged as incurable, and the two as unsuitable, were patients in the advanced stage, who never should have been sent to a Hospital for *incipient* Consumption; and, year after year, the medical staff have to deplore the fact that, notwithstanding a most carefully worded and strongly emphasised medical certificate, patients are sent who are past any possibility of even temporary improvement.

Of the eighteen described as "improved," and the twelve "much improved," some went home, and some continued treatment at other Sanatoria, and a fairly large proportion returned to the Western Hospital the following winter. At this point it may be well to say that the Western Hospital is only open from October 1st to May 31st in each year, in accordance with the wish of the founder. All those described as "disease arrested," and many of those discharged "very much improved," returned to work, provided their occupation was such that most of the day could be spent in the open air. This, however, constitutes the great difficulty when patients leave the Hospital. Many have formerly been employed in factories, offices, warehouses, and other places where fresh air and sunlight are difficult to obtain; and, what to do when they leave the Hospital is a cause of the greatest anxiety and perplexity. One patient, last year, was fortunate enough to get employment on some golf links; another on a farm, and one, who was formerly in an office, is now employed as traveller, and has a motor car to carry him from place to place. If the difficulty is great with the men, it is infinitely greater with the women patients, many of whom have been dressmakers, in woollen factories, or in domestic service as cooks, &c., and to whom no other occupation seems possible.

A very remarkable fact is, that in only two cases was there the slightest hæmorrhage, and in both these it was quite insignificant as to quantity and duration, and yielded readily to rest in bed and appropriate treatment. There is no doubt whatever in my mind that Ichthyol tends to diminish the amount of coughing and expectoration, and therefore to minimise the liability to hæmorrhage.

There is no doubt also that Ichthyol has the effect of reducing temperature, and keeping it within a very limited range both as to the evening rise and the corresponding morning fall. I believe it has a beneficial effect upon "night sweats," but I would rather give the "open air" treatment the credit of this, for, whether patients are taking Ichthyol or not, the night sweats, which have been so troublesome before admission, cease in a day or two after the patients have had the benefit of real and continuous "open air treatment." At first the patients complain of the disagreeable and almost nauseous taste of the medicine, but they get quite used to it in a few days, and if, for any reason, it has to be temporarily discontinued, they will ask to have it again prescribed, saying that they miss it, and feel much better when taking it. It seems almost paradoxical to say that a medicine which is at first nauseous should have a beneficial effect upon the appetite, but such is really the case, and the result is shewn in an increase of weight. There is no doubt also that the patient has an increased sense of well-being, is in better spirits, and happier in himself whilst taking Ichthyol, and this is no small advantage, and tends to promote recovery. I usually commence with $7\frac{1}{2}$ minims of Ichthyol in half a wine glass of water, three times a day, after food, and gradually increase it up to 10 drops, thrice daily, and I have never gone beyond that dose, though, no doubt, much larger doses would be tolerated in many cases.

When the patients leave the Hospital they invariably ask for the prescription of the "black medicine" they have been taking —shewing that they feel the benefit of it. To most of my patients I also give malt and oil, and this, with the good and and wholesome food provided, helps to increase the weight—one patient, recently, having gained 16 pounds in eight weeks.

The patients at the Western Hospital are encouraged to eat as much as they like, but forced feeding is not adopted, and, besides the ordinary meals, there is an abundant supply of milk provided.

In private practice, I very often prescribe the tablets of iron and Ichthyol sent out by Messrs. HERMANNI in boxes of 50, and I have seen very good results from this form of treatment, notably in cases of enlarged tuberculous cervical glands, but it is very seldom that the same accurate observations can be made in private as in Hospital practice.

On this point, Professor Koch, in his original monograph on "Tuberculin," says: "In several cases I have had a decided impression that the nursing of the patients had a very considerable influence in the result of the treatment. For this reason I strongly advocate the use of the remedy in proper institutions, where careful observations can be carried out, in preference to the treatment at home, or as an out-patient." This statement of Professor Koch applies to every form of treatment, including that with Ichthyol.

The value of Ichthyol to the Dermatologist is established beyond expectation, and its usefulness in gynecology is admitted by all, and in most diseases it seems to have a beneficial effect to a greater or less extent; but, to my mind, in the treatment of pulmonary tuberculosis there is no better auxiliary to "openair treatment" than Ichthyol, and, if my hastily written paper is the means of directing attention to the value of the drug in this form of disease, I shall be more than satisfied.