

## THE USE OF CONTINUOUS INHALATION IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

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OF late years there has been a steady revival of continuous inhalation in the treatment of pulmonary tuberculosis. Antiseptic inhalation is a remedy as old as the ancient Indians and Greeks. Charaka, Susruta, Hippocrates, Galen, Laennec, are some of the classical names that figure in the history of inhalation treatment. Coming to our own times, many distinguished names are connected with the advocacy of the method, such as Sir W. Roberts, Dr. Coghill, Dr. Burney Yeo, Dr. Wilson Fox, in England; Dr. Beverley Robinson, in New York; Dr. Ruata, in Perugia; and, lately, Dr. David Lees and Dr. Minchin stand prominently in their approval of this form of treatment for pulmonary consumption. The writer has been treating pulmonary tuberculosis with antiseptic inhalation since 1895, and in combination with sanatorium treatment since 1899. For this purpose he has devised an inhaler after the pattern of Dr. Burney Yeo and Dr. Ruata, which combines all the advantages of previous appliances without their disadvantages. Antiseptic drugs used for inhalation purposes must be more or less volatile, and should be easily taken into the lungs in the form of vapour with the inspired air. Two groups of solutions are in common use—the formaldehyde group and the guaiacol group. The first is found in what I call my A mixture, the second in C and D mixtures, and both in B mixture.<sup>1</sup> Formaldehyde stands first, as it is not only a strong germicide, but is highly volatile, and possesses a great penetrating power into tissue cells. It is first introduced to the patient in A mixture, which is a mild combination, containing only  $2\frac{1}{2}$  per cent. in strength, and made pleasant with the addition of menthol, pine, and chloroform. B mixture is a stronger inhalant, containing 5 per cent. of formaldehyde, with guaiacol, menthol, and pine dissolved in chloroform and alcohol. In this way we have given formaldehyde in hundreds of cases without any difficulty. The inhalant possesses the property of hardening the mucous membrane of the nose and the air passages, and patients do not feel any inconvenience after

<sup>1</sup> These preparations can be obtained ready for use from Messrs. Oppenheimer, Son and Co., Ltd., who also supply the form of oro-nasal inhaler which I consider the most desirable for general use.

its use. From A mixture the patients go on to use B and C mixtures. These are our standard mixtures, and more generally used; while D mixture, which contains guaiacol, iodine, terebene, and pine, with chloroform and alcohol, is kept as an alternate solution or for night use. By thus using all the solutions in succession, the patient is given the advantage of trying many antiseptic drugs in the course of the treatment. Our patients wear the inhaler at least eight hours or even more a day for the first few weeks. They are encouraged to keep on the mask at every opportunity, from the time they wake up in the morning till late at night, and some continue the inhalation even during the night. As the patients improve and the disease shows signs of arrest, the time is gradually reduced to six, four, and two hours a day.

After many years of close observation, I have no doubt in my mind that by continuous inhalation volatile antiseptics in the form of vapour mixed with air do enter the alveoli, as well as exercise influence on the bronchial passages. The inhalants are slowly absorbed into the blood in the lungs. Case after case that has got well when other measures have failed seems to show that in some way antiseptic inhalations help to check, if not destroy, the morbid activity of bacterial organisms. Improvement is evidenced clinically by the diminution of cough and lessening of expectoration and a reduction in temperature. Other advantages of the inhaler may be enumerated. It affords protection against strong winds and dust when taking walking exercise. Infectious "colds," and influenza are practically unknown in a sanatorium where antiseptic inhalations are systematically used. When visitors introduce a catarrhal infection from outside, the use of the inhalant mask prevents "colds" from spreading downwards or starting fresh mischief in the lungs. The proper use of the inhaler also makes the patient take a deeper breath. It further provides a certain amount of resistance, and favours the flow of blood into the lungs after the manner of Kuhn's suction mask, and it appears to facilitate healing. Speaking from many years' experience, I do not hesitate to claim that inhalation treatment is very simple, can be used at all times, incurs no risk (it is best not to use the mask during an attack of hæmoptysis), and can be carried out at home with advantage if a sanatorium is not available. I hold that if this method is carried out with perseverance and enthusiasm, it will prove to be a success in many cases of consumption. I venture to express my own views and experiences in this brief article in the hope that many medical practitioners may be induced to give the method I have endeavoured to describe a fair trial.