II.19.

Some Aspects of the Research Work on Chronic Bronchitis in China

In the past nine years, a lot of research work had been carried out in our country on chronic bronchitis, here are some related aspects in brief summary.

I. Epidemiology

Nation-wide surveys of 78,920,000 people conducted since 1971, showed an average morbidity of 4.0% (2.5-9.0%), while morbidity in the age group above 50 was as high as 13%. Certain features were noted: incidence higher in the north than in the south; higher in mountaineous areas than in plains; higher in rural areas than in urban areas. This suggests that, the pathogenesis of chronic bronchitis in our country is closely related to meterological factors and Socio-economical status of the people.

II. Etiology

1. Infections: more than ten kinds of viruses have been found which contribute to the pathogenesis of chronic bronchitis. Among them, Influenzae virus and Rhinovirus are the chief agents responsible for the colds. Coronavirus has also been identified in some cases, Viruses were isolated in 16.5% of the patients of chronic bronchitis in its acute stage. Bacterial infections were secondary in most cases, and A type streptococcus and Neisseria were found to be the chief agents, with bacillus influenzae or diplococcus pneumonia ranking next.

2. Meterological factors: The fluctuations of patients' condition in chronic bronchitis are closely correlated with average and, absolute temperature, the daily range and the daily variation of temperature.

3. Physico-chemical stimuli: High incidence was found with heavy air pollution and among smokers. There were about four times more patients in smokers than in nonsmokers. Higher incidence in rural areas may be partly due to the use of firewood for cooking which produces more smoke, and poor heating system and dwelling condition.

Besides hypersensitivity and allergy, senility, consumptive diseases, lack of physical activities, decrease in body resistance, and hypertonia of parasympathetic nervous system are all contributing factors.

J.A. Nakhosteen and W. Maassen (eds.), Bronchology: Research, Diagnostic and Therapeutic Aspects.

III. Results and outcome of persistent systematic treatment of chronic bronchitis.

In our Hospital, satisfactory therapeutic results were obtained after 9 years of persistent systematic treatment of chronic bronchitis. Remarkable improvement in clinical sysmptoms and progress in varying degrees of physical signs were noted in most cases. In 39 cases (old housewives in urban areas) after 8 year treatment, those with remarkable symptomatic relief or clinical cure made up 33.3%; those with improvement, 53.8%; only 10.9% showed no improvement or even got worse. Another 5 year observation of 94 cases in rural areas showed 2 cases of clinical cure (2.3%), 83 of improvement (88.3%), and only 9 cases showed no effect (9.6%). Works carried out by other hospitals showed similar results.

Parameters of objective observations, however, showed alterations in varying degrees as follows:

1. Dynamic changes in X-ray films of the chest: In a follow-up study of 68 rural patients in our Hospital, incidence of emphysema increased from 33 cases in 1975 to 42 cases in 1979; pulmonary fibrosis was getting more and more severe too. In another report of a 8 year observation of 39 cases of senile chronic bronchitis, those with aggravated reticular streaks and aggravated nodular shadows make up 67.6%; those with widened transverse diameter of right lower pulmonary artery increased from 3 cases in 1972 to 14 cases in 1979; those with right ventricular dilatation from 4 cases to 7 cases.

2. Electrophysiological examination of the heart: Just as in X-ray examination, in spite of remarkable improvement in clinical symptoms, signs of pulmonary hypertension and increase of right ventricular load proceeded steadily. For example, in a report of 41 cases in rural areas from our hospital, 3 year dynamic ECG observations showed considerable changes in frontal axis deviation in QRS and P amplitude and IPIvl in P axis, a 3-5 year dynamic VCG observation on 36 cases in urban areas displayed an increase in incidence of emphysema from 11 cases in 1974 to 15 cases in 1979, and of corpulmonale from 7 cases in 1974 to 11 cases in 1979. In a two year dynamic echocardiographic studies in 18 cases, of 5 cases show with normal findings in 1977, two showed manifestations of pulmonary hypertension one showed manifestation of both pulmonary hypertension and coronary insufficiency, and two showed signs of both cor-pulmonale and coronary insufficiency in 1979.

3. Dynamic examinations of pulmonary functions: In a report from the 1st Military Medical College, a seven year continuous observation on pulmonary ventilation (MMEF and FEV_1) showed a steady drop with time. In a 2-5 year dynamic observation on 62 cases in Amoy (MVV in terms of % of estimated value and FEV_1), overall evaluation of the results point out a definite decline in pulmonary ventilation. It would seem fit to point out that, our pulmonary function tests depend to certain extent on the patients' cooperation and manipulative technics, so that they are not very reliable objective parameters.

4. Bronchofiberscopic examination: In 18 cases under continuous treatment for 7 years in 1st Military Medical College, a check every 3 years displayed a trend towards increase in incidence of mucosal thickening and narrowing of lumen of the bronchi. A self-control biopsy study of 10 cases showed local improvement in 4 cases, aggravation in 5 cases, and indistinct change in 1 case. In their opinion, the submucosal fibrosis which might hinder the improvement in pulmonary function may be the reason why the function tests worsened in spite of symptomatic improvement.

According to the data of Hunan Medical College fewer patients with cor-pulmonale developed from the simple bronchitis than from the asthmatic types; after 7 year treatment, 14.5% were found in the former, while 54.2% were noted in the latter.

The above materials showed that, vigorous measures with the integrative use of both traditional and western medicine cannot put an end to the progress of chronic bronchitis in the later stages of the disease, though the course may be delayed to a certain extent by early treatment. However, Report of Hunan Medical College indicates the remarkable difference of prognosis between the group under persistent systematic treatment (cor-pulmonale in 13%) and the group with interrupted treatment (cor-pulmonale in 26%). Therefore, "persistent treatment and follow-up the patients to the end" will always be the guiding principle in our work for the prevention and treatment of chronic bronchitis. The contradiction between clinical improvement and deterioration of objective parameters needs further investigation. Clinical amelioration and functional improvement are not necessarily correlated with morphological changes. A common experience in clinical practice shows that functions may be improved through excercises. Thus, we enthusiastically recommend the "persistent treatment and follow-up the patients to the end" principle, which may not only alleviate symptoms, preserving or even improving the ability of work, but also retard the progress of disease, prolonging the life span.

IV. Treatment of chronic bronchitis with Chinese traditional medicine

Over 300 Chinese herbs have been explored and studied; over 80 of them are now popularized; chemical structures of the effective components of 180 have been elucidated, and 23 have already been synthesized. Rhododendron simsii (杜鹃), Vitex negundo (牡荆) and some herbs with anticholinergic effects like Radix physochlainae (热参) and Flos daturae (洋金花) were well studied. Among the so-called "rectification drugs", Gonoderma lucidum (灵芝), Acanthopanax senticosus (刺五加), Astragalus membranaceus (黄芪) and some set prescriptions manifest definite therapeutic effects in clinical use.