◇ Special Lecture ◇

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Reconsideration of the Policy on Tuberculosis Control Program in Japan

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—국문초록—

일본 결핵관리 정책의 재고

일본결핵예방회 결핵연구소

이 와 사 끼

1953년부터 5년마다 실시한 결핵 실태조사에 의하면 결핵유병율은 40세이하에서 현저히 저하되고 있다. 35세이하의 연령층에 BCG 접종율이 대단히 높은데 이것이 유병율저하의 주요한 원인이라고 생각된다. BCG 접종은 접종시기를 신생아, 국민교신입생, 중학교졸업시의 세번으로 실시할 계획이다. X선검진은 국민교생과 중학교생들에 대하여 2~3년에 한번씩 실시할 계획이다. (현재 유병율 0.1%)

지난번 실태조사의 결과를 보면 주민의 약 3.5%가 호흡기 증상이 있고 이들의 약 10%가 활동성 결핵환자이었다.

정부에 건의하고 싶은것은 모든 개업의를 통하여 호흡기증상자에 대한 X선검사와 세균검사를 하도록 하는 것이다. 현재 일본에서는 약 60만명이 치료를 받고 있고 이중에 약 16만명이 입원치료를 받고 있는데 평균 10개월 입원하고 있다. 우리는 지금 입원기간은 단축시키고 초치료를 강력히 할 생각이다. 만약 국가예산에 제약을 받는다면 많은 임상가들이 반대를 하겠지만 국가결핵관리 정책은 통제적, 역학적인 견지에서 다루는 것이 현명하다고 생각된다.

It is my great privilege and pleasure to be invited to attend the Annual Meeting of the Korean Academy of Tuberculosis and to have a chance to present a report on something about the reconsideration of the policy on tuberculosis control program in Japan.

As you probably know we have carried out nationwide tuberculosis prevalence survey four times with every five year interval since 1953. The fourth survey was carried out in 1968.

The trend of the prevalence of active tuberculosis by age groups is demonstrated in slide No. 1. The decrease of the prevalence rate is remarkable in age groups younger than 40 years of age.

In order to know the incidence of tuberculosis exactly, we examined, one year after the third survey, the same people who had been examined in the previous year. As revealed in slide No. 2.

The incidence rate was also low in younger age groups, but in age groups higher than 40 years of age, the rate was considerably high. The linear curve in this slide shows the rate of persons, who received BCG vaccination in the past.

In the age groups under 35 years, the percentage of persons, who have received BCG vaccination in the past, was very high. So the natural infection of tuberculosis in those vaccinated persons is thought to have been less progressive. This might be one of the reasons why the incidence rate of those age groups was low.

On the contrary, the infection occurred without previous immunization in the age groups higher than 40 years, so higher tendency of development of the disease still remained in those age groups. In our country BCG vaccination has been carried out compul-

No. 1.

Incidence of Tuberculosis (1963→1964) and Coverage of BCG Vaccination

No. 2.

Rate of BCG Vaccinated Persons According to Age Groups
年令別 BCG 接種率

No. 3.

sory mostly on pupils both of primary and middle school since 1950. Since then the age groups with high coverage of BCG vaccination shifted gradually to higher age groups.

We are expecting that all age groups will be covered by BCG after 30 years or so, and marked decrease of

the incidence of tuberculosis will occur in all groups at that time. In our revaccination policy revaccination has been done every year if tuberculin reaction becomes negative, regardless to the frequency of vaccination in the past years and the interval from the previous one. Ulcer formation at the site of BCG inoculation was larger in revaccination than in the first vaccination. So, many pupils of higher grade got several scars on their upper arm. And there appeared a tendency to hesitate to receive vaccination.

Meanwhile we have been developing percutaneous inoculation of BCG, and in 1967 we confirmed that the new method was almost equally effective as intracutaneous method, and the ulcer formation at the site of inoculation was almost nul, although the expense for the vaccination was very much raised. In 1967 it was decided to change intracutaneous infection into percutaneous method, because we considered that it is necessary to reduce ulcer formation at the site of inoculation for continuing BCG vaccination program.

As to the scar formation at the site of BCG inoculation we have found that the rate of hypertrophic scar formation differed according to part of arm. As demonstrated in the slide No. 4. The rate was higher at deltoid region than down ward of upper arm. I would like to recommend this part of arm as the site of BCG inoculation.

Site of BCG Vaccination and Scar Formation

BCG接種部位別
瘢痕形成状況

No. of cases observed 観察例数	No. of hypertrophic scar formation 肥厚性瘢痕	Average size of Scar 瘢痕平均径
497 100.0%	40 8.1%	9.6 mm
459 100.0%	11 2.4%	8.1 mm
1829 100.0%	6 0.3%	8.3 mm

No. 4.

We are now considering the change of BCG vaccination program. At present we examine tuberculin reaction every year and carrying out revaccination on persons with negative reaction regardless to the interval between previous vaccination.

We are now going to change this policy into revaccination with an interval of several year, that is, the 1st vaccination in infant, the second vaccination at the age of entering primary school, the third one at time of leaving middle school, because the effectiveness of BCG vaccination continues at least several years and it is said to be effective even after negative change of post vaccination tuberculin allergy.

In slide No. 5. the rate of persons in each age group, who received mass radiophotography in a year, was demonstrated. The rate was very high in school age group and young adult. This might be also one of the reason why the prevalence rate became low in those age groups.

slide No. 6. shows the coverage of case finding program and the prevalence rate of active tuberculosis according to occupation. In general it may be said that higher the coverage for case finding program is lower

the prevalence rate of tuberculosis.

The prevalence rate of primary school pupils becomes 0.1%, as the result of great effort of tuberculosis control for many years. So we are going to change the policy to examine all pupils in every year into one examination in every two or three years, except high risk group, in which examination should be carried out once every year as before. As to high risk group we consider those pupils with strong tuberculin reaction at the time of school entrance, because the incidence rate of tuberculosis was much higher than pupils with weaker tuberculin reaction as demonstrated in slide No. 7.

The coverage of case finding program of general inhabitant is not good and many effort have been made to improve it. In some prefectures women's society for the prevention of tuberculosis was formed and played a great role in improving the coverage.

We have examined in many district the rate of new patients, who were discovered by mass case-finding program, among all new patients registered in a year.

As demonstrated in slide No. 8 the rate of patients who were discovered by case finding program was only 30% or so even in district where the coverage of cases finding of inhabitant was over 90%. The reason why the rate is so low is not yet entirely revealed. In Japan radiophotography with 35mm less camera system

No. 8. Rate of Cases Found by Mass Casefinding Program among New Cases

Rate of Person examined in a community	New Tbc. cases Registered in a year	New Tbc. cases found by Mass-survey	New Tbc. cases found by clinic
~90%	750 100.0%	212 28.3%	538 71.7%
~80%	319 100.0%	118 37.0%	201 63.0%
~70%	151 100.0%	60 39.7%	91 60.3%
~60%	181 100.0%	26 13.3%	155 86.7%
~50%	91 100.0%	24 26.3%	67 73.7%
49%~	258 100.0%	32 12.4%	226 87.6%

is generally used. This size is too small for unskilled doctors, This might be one of the reasons why the rate is so low, so we are recommending to use 70mm milor camera system of radiophotography. Escape of patients from examination may be also important factor of such result.

But we must take in consideration the fact that about 70% of new patients were found in clinics by the visit of patients because they had some symptoms.

Until now case finding program of inhabitant were promoted in Japan with the propaganda that healthy person should be examd for the early detection of tuberculosis, because in the early stage of tuberculosis there is no symptom.

We are now changing the attitude. In the last nation-wide tuberculosis prevalence survey, it was revealed that the percentage of persons with respiratory symptoms was 3.5%, of all inhabitant and among

symptomatic persons active tuberculosis was found in about 10%, that is, about ten times as high as in non-symptomatic persons. As it is clear in slide No. 9.

Encourage with this fact Osaka branch of Japan Anti-Tuberculosis Association has tried in cooperation with general practioners of the city to examine radiologically and bacteriologically all patients who visited their clinic with respiratory symptoms and the result was as revealed in slide No. 10.

No. 10. Result of Examination with X-Ray of Persons who visited Clinic with Respiratory symptom

Total No. examined	Cavitary tbc.	Non-Cavitary active tbc.	Non-tbc. Resp. Dis. with X-Ray findings
2328	93 4.0%	192 8.2%	167
100.0%	12.2%		7.2%

呼吸器有症状者検査成績(大阪地区 醫師會 結核豫防會大阪地部)

This type of integrated program seems to be very useful to find out patients especially in the district such as in big cities, where the coverage of case finding is low and distribution of clinics is dense. We are now recommending to the Japanese Government to include this type of case finding in the national tuberculosis control program, and to make propaganda to the public "tuberculosis has some symptoms, such as cough, sputum, hemoptisis or chest pain when the disease developed to some degree, but it is not too late. Advanced method of chemotherapy can cure the disease. Receive chest examination or sputum examination if such symptoms continued for more than 2 weeks."

As to the chemotherapy of tuberculosis in Japan, about 600,000 cases are now under treatment. Among them about 3/4 of cases are treated domiciliary by general practitioner. To prevent default from the treatment public health nurses of health centers are supervising these cases by home visit and by taking contact with doctors who are treating them. But the rate of defaulter is about 30%. In spite of the fact about 73% of domiciliary treated cases including defaulters have attained therapeutic farget, according to 10 year follow up patients who were found in the prevalence survey of 1958.

No. 9

Number of cases which are treated in hospital at present is about 160,000. Duration of the stay in hospital was generally rather long, in average 10 months or more. We are now recommending to shorten the stay, especially in the original treatment cases, and to carry out initial intensive chemotherapy during their short stay in hospital. But we meet with strong opposition of doctors who are working at tuberculosis hospital. They want to treat patient in hospital as long as possible.

In the field of tuberculosis control, doctors who are responsible for the national tuberculosis control program should form the scheme of the control from statistical stand point taking in consideration of the national budget for the control of tuberculosis. In this connection the WHO's policy on the control of tuberculosis is a typical model. The policy is very rationally

constructed based upon the results of fundamental and operational researches.

Such a way of thinking may be opposed very often by clinician, who are used to consider the benefit of individual patient with priority.

If the national budget for the control of tuberculosis is sufficient enough, such a difference of opinion between control officers and clinicians will not happen.

For the rapid decrease of the prevalence of tuberculosis by use of limited budget, I think that statistical epidemiological thinking of the control of the disease is necessary.

And I hope the cooperation of all tuberculosis specialist to work together for the rapid eradication of tuberculosis.