

## Abstract

We collected 935 strains of Group A Streptococcus in northern Taiwan area from 2001 to 2002. Performs to analyze the epidemiology and the strain characteristic data of bacterium. First the epidemiology data demonstrate that the entire year there have cases of illness to occur. But more cases of illness occur in December to next year June or July, for main popular season.. The main infection age level is in 5-10 years old children, approximately composes the 81.3% in all population of infects. It is 1.49 times higher than women that man are infected. In the densely populated city is the main infection area, for example: 31.0% of Taipei county, 24.3% of Taipei city, 19.9% of Yilan county and Taoyuan county 18.2%. Relatively these two years, the case of illness had increased obviously, and the rate is reaches 1.94 times to increase. The female and the male individually increase 1.76 and 2.07 times. The main age level increases 1.80 times, Various areas increase the ratio respectively are Taipei county 1.84 time, Taipei city 2.29 time, Yilan County 1.38 time and Taoyuan county 2.20 times. All these have the tendency to obviously increase while showing these two years. In the characteristic of the bacterial strain is analyzed; have already finished setting up a set of more steady and faster analyzing technology about pulse-field gel electrophoresis method. Using computer analyzes ,and then it can separate 56 kind of different PFGE subtype, as follows mainly: GAS-S1000 ( 33.8% )、GAS-S2001 ( 13.3% )、GAS-S3000 ( 13.3% )、GAS-S6000 ( 9.3% ) and GAS-S2003 (6.3% ). It may differentiate 26 kind of dominant type to leave under the similar 80 % conditions, it is mainly GAS-S10 (34.5 ) , GAS-S20 (20.4 ) , GAS-S60 (15.4 ) and GAS-S30 (14.8 ). The PFGE type of main infection strain is also similar in main infection age level, the male and the female. But looked in the different infection region and the age analysis that GAS-S30 increases 1.56 times (78/50) in the entire year comparison, but actually increases 11 times in Taipei city (33/3), counter- view Yilan County reduces 0.23 time (4/17), but other main type in various areas all in 3 to 1.3 time of increase. Moreover, the bacteria strains isolate from the many contacted cases in the identical infection case, were discovered has the same PFGE type. Eliminates this, we also had established an emm sequence technology to use. We had been possible to differentiate 11 kinds of type and 26 kinds of subtype, most is emm 4.0 accounts for 27.3 % , next is emm 1.0 ( 25.4 % ) , emm 6.0 ( 9.1 % ) , emm 12.1 ( 7.7 % ) and emm12.0 ( 7.2 % ) etc. We compare these two methods; The PFGE type GAS-S10 can be possible to divide into 11 kinds of different emm-type, and there also have different emm-type in other PFGE-type. Opposite, the same kind of emm type also has the different PFGE-type. Therefore uses these two methods to be allowed to achieve the better classified effect. In our result of antibiotic study, it is all susceptible to penicillin. But there are resistant and intermediate to the Erythromycin respectively is

24.9% and 58.2% . In the resistant bacteria strain 15 strains of resistant bacterium have the same resistance to Clindamycin. This shows that in our country there is a trend to increase of resistance to erythromycin as other countries. This research in view of the bacteria that cause the scarlet fever infection. On the one hand to set up correlation research technology platform. Will treat as a tool that established a bacterium characteristic database in the future. On the other hand hoped will take advantage to survey the infection disease of Group A streptococcus in Taiwan area. It will be the important reference by takes the preventing and controlling Group A streptococcus infection. In addition may further discuss the related question about the change of bacteria and the pathogenesis mechanism and so on.

Keywords : Group A Streptococcus ; Scarlet fever ; PFGE