Analysis of pulsotypes of salmonella typhi isolates and their clinical profiles in typhoid fever patients

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Abstrak

Studi penentuan genotip (pulsotip) terhadap isolat-isolat Salmonella typhi (S. typhi) telah dilakukan menggunakan elektroforesis medan listrik berpulsasi (PFGE = Pulse-Field Gel Electrophoresis). Penelitian ini bertujuan untuk mempelajari diversitas genetik dan hubungan antara karakter genetik dengan manifestasi kliniknya. Sebanyak 66 isolat S. typhi yang berasal dari kasus demam tifoid yang dirawat di rumah sakit telah dianalisis. Empat isolat ditemukan identik dan hasil konstruksi dendogram menunjukkan terdapatnya 33 pulsotip dimana 13 di antaranya dapat dipisahkan dalam 30 subtip. Keragaman genetik di antara mereka relatif tinggi yang ditunjukkan dengan koefisien Dice 0,486-1,000. Pada derajat similaritas 65%, analisis sidik gerombol menunjukkan adanya 2 sidik gerombol utama, sehingga timbul dugaan bahwa S. typhi yang beredar bukan berasal dari klon tunggal. Pada derajat similaritas 90%, dari 9 sidik gerombol yang beranggotakan > 3 isolat, didapatkan manifestasi klinik yang sangat bervariasi dari ringan sampai berat tersebar diantara 9 sidik gerombol tersebut. Walaupun data rekam medis yang didapat kurang lengkap, 2 dari 4 pasien demam tifoid dengan S. typhi yang berasal dari sidik gerombol 1 memperlihatkan kenaikan total bilirubin yang tidak ditemukan pada 19 pasien yang berasal dari 8 sidik gerombol yang lain. Dengan adanya temuan ini, diduga adanya kemungkinan suatu trofisme pada system hepatobilier dari kuman S. typhi pulsotip I1dan I2 yang berasal dari sidik gerombol 1. (Med J Indones 2003; 12: 13-20)
<hr>A study of genotyping (pulsotyping) of Salmonella typhi (S. typhi) isolates using pulse-field gel electrophoresis (PFGE) methods was performed to examine their genetic diversity, and relationship between genetic characteristics and clinical outcomes. Sixty-six S. typhi isolates obtained from sporadic hospitalized typhoid fever cases were used in this study. Four isolates were found identical and the dendogram constructed showed 33 pulsotypes in which 13 of them can be divided into 30 subtypes. Diversity among them were high as shown by the Dice coefficients that ranged from 0.486 to 1.000. Cluster analysis showed 2 main clusters with 65% degree of similarity, suggested that they were not originated from one clone. Further, at 90% degree of similarity, 9 clusters containing at least 3 isolates were determined to explore any possible existence of relationship between genetic profile and particular clinical outcomes. Clinical manifestations ranged from mild to severe were in fact distributed diversely among these clusters. Although the clinical data obtained were incomplete, 2 out of 4 patients infected by the S. typhi belonged to cluster 1 showed an elevation of total bilirubin, whereas it was not found in 19 other patients distributed in other 8 clusters. Even though specific clinical manifestations were apparently not found to relate with particular clusters of genotypes, S. typhi isolates grouped in cluster 1 seemed to show trophism to hepatobiliary system. (Med J Indones 2003; 12: 13-20)