Typing of S. aureus by Digestion of Protein a Coding Gene with Bsp143I

Fatemeh Shakeri; Ezzat Allah Ghaemi*

Infectious Disease research center, Golestan university of Medical Sciences, Golestan, Iran

eghaemi@yahoo.com

Background & Objectives: PCR-RFLP of spa (spatyping) for tracking and typing MRSA was proposed by Mitani and colleagues. Different enzymes, especially HaeII, have been used for this purpose. In this study we digest the spa gene product with BSP143I.The OLIGO was applied to detect the restriction sites of this enzyme on spa gene.The restriction sites of this enzyme is outside of X region.

Methods: In this study, DNA extraction and spa gene amplification was carried out according to our previous study which can be explained briefly as follow: The DNA extraction was done using the Phenol-chloroform and specific primers was used for spa genes PCR. In this study we digest the spa gene product with BSP143I.

Result: We studied on132S.aureus isolate, 47 and 85 of them were MRSA and MSSA respectively.56 out of them were isolated from nose of health care workers and other from patients. After digestion with bsp143I, 4 of them were non type ableand others divided in 7 types. In Type 7 had 3 bands and another types had 4 band. Types 5, 6 and 7 were each seen in one sample. Bands of 100 and 150bp were existed in all types, but two other bands were different. Bands smaller than 100bp were not included in the calculation. The actual number of parts may be greater than the number listed.Although all seven spa types present in MSSA isolate, only four type(types1-4) were seen in MRSA,it means the variation in MSSA is more than MRSA strains. Maximum distribution of the samples was seeing in wound (5types) and type2 was the most prevalent in this sample (43.8%). Types 1, 2, 4 were identifiable in all of samples. Three out of 4 type 3 samples were isolated from wound infection. Type 1(50%) was the most frequent spa type in bacteria were isolated from urine but there is no statistical meaningful difference between spa and samples types.

Conclusion: A number of studies had showed that are spa types of MSSA strains more than MRSA strains also in this study. We used the enzyme BSP143I that It is not used in any previous studies of this enzyme.

Keywords: S. aureus; PCR-RFLP; spatyping