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Title: Determination of the Methicillin-Resistant Staphylococci Strains Isolated From Hospitalized Patients by Disk Diffusion, Agar Dilution and PCR

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Abstract: Introduction: Methicillin-resistant Staphylococci strains are important causes of nosocomial infections and caused difficulties in treatment. Laboratory diagnosis and determination of antimicrobial pattern of these strains are necessary in treatment of infections. The aim of this cross-sectional study was Comparison of Disk diffusion, Agar dilution and PCR in determination of the prevalence of the methicillin-Resistant Staphylococci strains isolated from hospitalized patients in Yazd and determination of resistant pattern.

Material and methods: A total of 60 Staphylococci strains were isolated from different samples of hospitalized patients in hospitals of Yazd. Disk diffusion method (Kirby-Bauer), agar dilution method for determination of MIC (according to CLSI) and PCR (for mecA gene) were used in detection of methicillin-resistant staphylococci strains. The susceptibility testing of staphylococci strains were determined by disk diffusion method.

Results: Out of 60 staphylococci strains, 73.33% were identified as S.aureus and 26.67% as coagulase (-) staphylococci which 40% of all strains were resistant by disk diffusion method, 45% by agar dilution method and 46.67% by PCR. Out of 28 methicillin resistant Staphylococci strains, 35.71% of them isolated from urine and 28.57% from wound specimens. The susceptibility results showed that methicillin-resistant strains had the most drug resistance for penicillin (100%), cephalothin (82.14%) and co-trimxazole(75%). All of the strains were sensitive to vancomycin.

Conclusion: Our study shows that PCR is more sensitive than other methods for detection of methicillin-resistant staphylococci, but results of PCR and agar dilution methods were similar for coagulase negative staphylococci strains. Because of high level resistant of these strains, antimicrobial susceptibility testing and reporting of resistance to methicillin is necessary.

Key words: Staphylococci, MRSA,PCR, microbial resistance, Agar dilution

Presentation: Poster