ABSTRAK

Penyakit DM ialah gangguan metabolik yang bisa mengakibatkan adanya permasalahan seperti infeksi luka kaki atau ulkus diabetik. Keadaan hiperglikemia yang diderita pasien diabetes melitus menjadi faktor strategis bagi bakteri untuk dapat berkembang biak. Bakteri yang sering ditemui menginfeksi ulkus diabetik ialah *Staphylococcus aureus.* Terapi antibiotik yang kurang baik bisa menimbulkan resistensi *Staphylococcus aureus* terhadap antibiotik pengobatnya yang dikode oleh gen *mecC* menjadi *Methicillin Resistant Staphylococcus aureus* (MRSA). Gen *mecC* mengkode mutasi *Penicillin- Binding-Protein 2* (PBP2) menjadi PBP2c yang turunnya afinitas pelekatan antibiotik pada bakteri. Gen *MecC* berasal dari homolog gen *mecA* yang baru ditemukan, namun prevalensinya terus meningkat seiring tahunnya. Tujuan dari penelitian ini guna memahami keberadaan *Methicillin Resistant Staphylococcus aureus* (MRSA) pembawa gen *mecC* pada isolat ulkus pasien diabetes melitus. Penelitian ini ialah jenis penelitian deskriptif kuantitatif yang dikerjakan pada bulan Februari hingga Mei 2024 di Laboratorium Mikrobiologi dan Biologi Molekuler Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Surabaya menggunakan total 21 sampel swab ulkus diabetik. Hasil dalam penelitian ini didapati 17 dari 21 sampel swab ulkus diabetik disebabkan oleh infeksi bakteri *Staphylococcus aureus* (81%) sedang 4 (19%) lainnya disebabkan oleh *Staphylococcus epidermidis*. Pada uji resistensi antibiotik diperoleh 3 sampel (18%) kode 001, 013, dan 014 resisten terhadap antibiotik cefoxitin, sedangkan 14 sampel (82%) lainnya menunjukkan hasil yang sensitif terhadap antibiotik cefoxitin. Adapun pada uji deteksi molekuler didapatkan 2 sampel (67%) kode 013 dan 014 positif mengandung gen *mecC* dengan nilai *Cycle Threshold* (Ct) masing masing 15,75 dan 1,25, sedang 1 sampel (33%) lainnya menunjukkan hasil yang negatif mengandung gen *mecC*.

Kata Kunci: Ulkus Diabetes Melitus, *S. aureus,* MRSA, Gen *MecC*

ABSTRACT

DM is a metabolic disorder that can lead to problems such as foot wound infections or diabetic ulcers. The state of hyperglycaemia suffered by patients with diabetes mellitus is a strategic factor for bacteria to multiply. Bacteria that are often found infecting diabetic ulcers are Staphylococcus aureus. Poor antibiotic therapy can lead to Staphylococcus aureus resistance to antibiotic treatment which is encoded by the mecC gene to become Methicillin Resistant Staphylococcus aureus (MRSA). The mecC gene encodes the mutation of Penicillin- Binding-Protein 2 (PBP2) to PBP2c which decreases the affinity of antibiotic attachment to bacteria. The MecC gene is derived from the homologue of the newly discovered mecA gene, but its prevalence continues to increase over the years. The purpose of this study was to understand the presence of Methicillin Resistant Staphylococcus aureus (MRSA) mecC gene carriers in ulcer isolates of patients with diabetes mellitus. This study is a quantitative descriptive study conducted from February to May 2024 at the Microbiology and Molecular Biology Laboratory, Department of Medical Laboratory Technology, Poltekkes Kemenkes Surabaya using a total of 21 diabetic ulcer swab samples. The results in this study showed that 17 out of 21 diabetic ulcer swab samples were caused by Staphylococcus aureus bacterial infection (81%) while the other 4 (19%) were caused by Staphylococcus epidermidis. In the antibiotic resistance test, 3 samples (18%) codes 001, 013, and 014 were resistant to cefoxitin antibiotics, while 14 samples (82%) showed sensitive results to cefoxitin antibiotics. As for the molecular detection test, 2 samples (67%) code 013 and 014 were positive for the mecC gene with Cycle Threshold (Ct) values of 15.75 and 1.25, respectively, while 1 sample (33%) showed negative results containing the mecC gene.

Keywords: Diabetic Ulcers, *S. aureus,* MRSA, *MecC* Gene