

Prediction of AKI with plasma neutrophil gelatinase-associated lipocalin while using colistin

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Background: Colistimethate sodium (CMS), used to treat multidrug-resistant, gram-negative bacteria infections, is associated with acute kidney injury (AKI). Early AKI detection in CMS-treated patients can help prevent progression to acute failure and reduce the need of renal replacement therapy. We hypothesized that plasma NGAL may be an early biomarker of AKI in CMS-treated patients. **Methods:** This prospective cohort study included patients aged ≥ 20 years who received intravenous CMS between March 2014 and November 2015. AKI was defined according to Kidney Disease: Improving Global Outcomes criteria. The primary endpoint was the difference between the average time to AKI onset based on serum creatinine and empirically derived plasma NGAL levels. **Results:** Among 109 CMS-treated patients, 23 patients (mean age, 61.3 ± 16.1 years; men, 65.2%) were evaluated. Thirteen (56.5%) patients fulfilled the AKI criteria. The mean time to AKI onset based on serum creatinine after CMS initiation was 78.15 ± 30.49 hours. AKI was detected approximately 22 hours earlier using plasma NGAL than when using serum creatinine as an indicator of AKI ($p = 0.035$). The baseline plasma NGAL level was 264.0 ± 167.3 ng/mL and 192.7 ± 65.3 ng/mL in patients with and without AKI, respectively ($p = 0.218$). The area under the curve for plasma NGAL level at 56 hours was 0.796 (95% confidence interval, 0.609–0.983; $p = 0.017$), with a sensitivity and specificity of 69.2% and 90.0%, respectively (cutoff value, 285 ng/mL). **Conclusion:** Plasma NGAL level is a strong predictor of AKI in CMS-treated patients.

Malaria control and chemoprophylaxis policy in the ROK Armed Forces for the past 20 years

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Introduction: Since 1993, Republic of Korea (ROK) has had a resurgence of vivax malaria from near the Demilitarized Zone (DMZ). Consequently, the ROK Ministry of National Defense (MND) instituted malaria prevention policies including a large-scale chemoprophylaxis program in endemic areas since 1997. We described the overall changes of malaria incidence in ROK soldiers and in mass chemoprophylaxis over 20 years. **Material and Methods:** The present study used infectious disease monitoring system of the MND and the Korean Centre for Disease Prevention and Control, which is based on a blood smear test, rapid antigen test, or polymerase chain reaction examination. **Results:** There was a resurgence of vivax malaria in near the DMZ since 1993. The MND had implemented a mosquito control and personal protection in an attempt to combat the resurgence of the vivax malaria, but the number of malaria patients in the military has continued to increase. Since 1997, the MND has implemented a large-scale chemoprophylaxis program. They improved the medical system for faster diagnosis and treatment additionally. A prophylaxis with a combination of chloroquine and primaquine (CP prophylaxis) has been initiated since 1997; terminal prophylaxis with primaquine (Pq prophylaxis) was added in retired soldiers since 2001. Thereafter, the outbreaks of malaria in the ROK Armed Forces begun to decline and additionally this change was also observed in civilians. There were several changes in chemotherapy in the ROK Armed Forces accordingly: shortening of CP prophylaxis period by 2 months since 2008; the switch from CP prophylaxis to Pq terminal prophylaxis in the moderate risk group since 2011 and subsequently the Pq terminal prophylaxis was ceased since 2016. **Conclusions:** The outbreak of malaria in ROK troops has successfully controlled, and the chemoprophylaxis program initiated by the MND helped suppress vivax malaria during the early period of its resurgence (1997–2000). However, several factors, besides chemoprophylaxis, have affected the reduction in malaria transmission since 2000. Thus, it is necessary to revisit the malaria eradication policy, given the changed situation in South Korea. a

Fig 1. The number of chemoprophylaxis subjects and malaria patients in ROK Armed Forces

