

HOSPITALIZATION AND MORTALITY IN HEMODIALYSIS PATIENTS: ASSOCIATION WITH NASAL METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS CARRIAGE

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INTRODUCTION AND OBJECTIVES:

Cardiovascular disease (CVD) and infection are the most common causes of hospitalization and death in patients with end stage renal disease (ESRD). Hospitalizations for bacterial infections also were associated with an increased risk of CVD morbidity and mortality in ESRD patients. Staphylococcus (S) aureus, especially methicillin-resistant S. aureus (MRSA), is a common opportunistic infections in this population.

The aim of the work was to estimate the relationship between the MRSA colonization in hemodialysis (HD) patients and their morbidity and mortality.

METHODS:

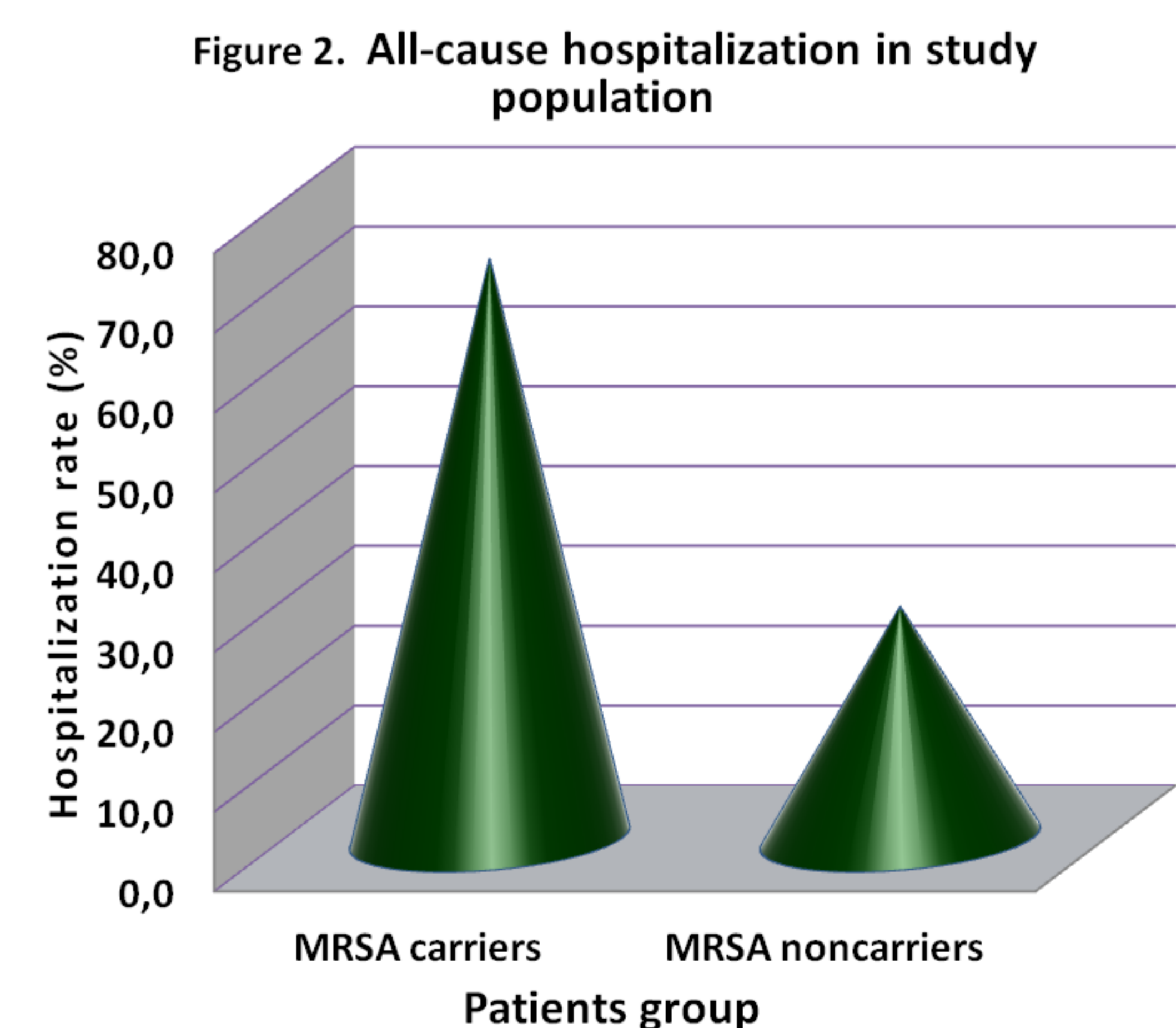
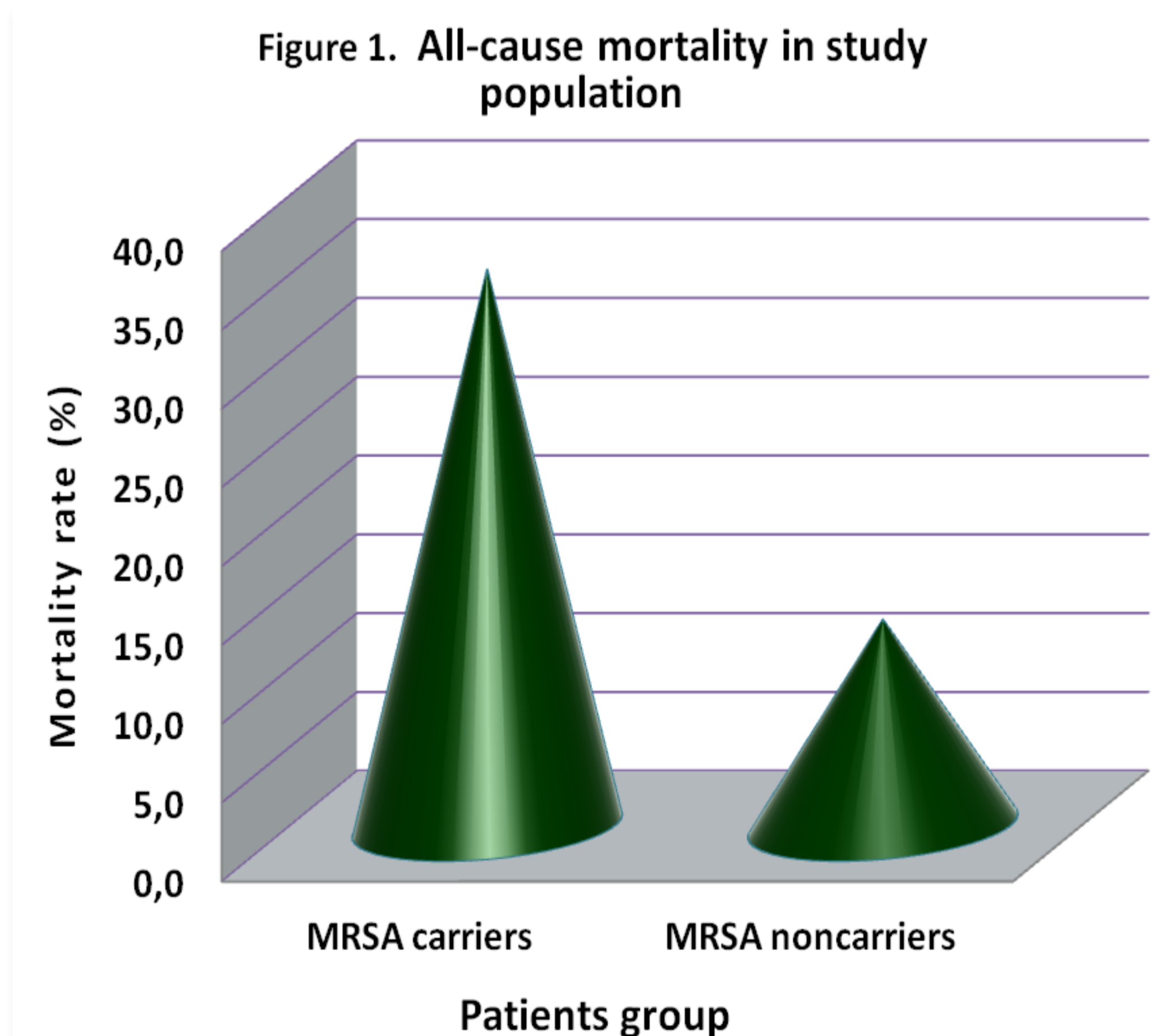
This study was an observational, prospective, epidemiological tracking, performed during 3.0 years by clinical examination. The study included 196 HD patients with ESRD without signs of infection, from dialysis single-center of Ukraine. 111 HD (56.6%) patients were men, median age was 54.2 (range 21 - 78 years) and the most common cause of ESRD was glomerulonephritis (118 patients, 60.2%). Patients were classified into two groups: group I included 51 patients with a history of nasal MRSA carried, group II – 145 MRSA-negative patients. During follow-up, all hospital admissions and all causes of mortality were documented and compared for MRSA carriers versus noncarriers

RESULTS:

During follow up the 37 deaths and 79 hospitalization cases among all patients were detected. The patients from group I showed a higher mortality rate than patients from group II (18/35.3% vs. 19/13.1%; $\chi^2= 10.726$, $p= 0.000495$; Fig. 1).

All causes of hospital admissions was 37/72.6% in group I and 42/29.0 % in group II ($\chi^2= 28.003$, $p = 0.0000000482$; Fig. 2). Almost half (46.84%) of admissions were related to infections (51.35% respiratory infection, 24.32% vascular access, 16.22% wet gangrene, 8.11% osteomyelitis). The odds ratio for all-cause hospitalization in the group I were significantly higher than in the group II (OR = 6.481; 95% CI: 3.180- 13.210).

Patients with a history of nasal MRSA carried (group I) showed a significant higher rate of the hospital admissions incidences both due bacterial infections (17/33,33% vs. 19/13,1%; $\chi^2= 8.993$, $p= 0.00133$), and cardiovascular complication (14/27.45% vs. 18/12,41%; $\chi^2= 5.193$, $p = 0.01245$) than without it (group II).



CONCLUSIONS:

In summary, our study demonstrated the predictive role of nasal MRSA carriage on all-cause mortality and hospital admissions. This study demonstrated the relevance of MRSA screening in HD patients and should alert the physicians that carriage is associated with poor clinical prognosis despite a lack of clinical signs of infection.

