

Abstract

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Title of diploma thesis: Detection of methicillin – resistant *Staphylococcus aureus* (MRSA) in Hospital České Budějovice, a. s. and in University Hospital Hradec Králové

The resistance of microbes to antibiotics belongs to worldwide health problems. Infections, which are caused by methicillin-resistant *Staphylococcus aureus* (MRSA), occur mainly in hospitals. It is because of incorrect and excessive consumption of antibiotics. Insufficient observance of hygienic-epidemiological measures helps to spread resistant strains.

Background: The aim of the study was to determine the incidence of MRSA strains in two Czech hospitals – in Hospital České Budějovice, a.s. and in University Hospital Hradec Králové. To compare results with figures in the previous years and sort isolated strains by different characteristics in both hospitals.

Methods: Results of the study are based on retrospective data analysis from electronic database. All data from hospitalized patients or outpatients during 1.1.2015 – 31.12.2015 with isolation of MRSA were counted. Processing and cultivation of isolates were made by standard microbiology measures. Strains, which were specified as *Staphylococcus aureus*, were tested to antibiotics.

Results: In FNHK the highest finding was in Gerontological and Metabolic Clinic (32 % in 493 isolates), similar count in Internal Department and Department of Subsequent Care (27 % and 25 % 882 isolates) was in NemčB. The most frequent materials in FNHK were samples from respiratory tract (34 %), in NemčB there were samples from wounds (28 %). Higher number of isolates was found among men and older people (≥ 50 years). The most frequent phenotype of resistance was combination ciprofloxacin, clindamycin, erythromycin (73 %

FNHK, 67 % NemčB). Sensitivity (100 %) was kept to vancomycin, linezolid, and tigecycline.

Conclusions: Incidence of MRSA in these hospitals is not higher than in the Czech Republic (14 % EARS-Net). Resistance to gentamicine is increasing in NemčB and there are new phenotypes of resistance. It is necessary to oversee the situation, to inform doctors and to stick hygienic-epidemiological measure.

Key words: bacterial resistance, nosocomial infections, methicillin-resistant *Staphylococcus aureus*, antibiotics