

PREFACE

This Supplementum of Central European Journal of Public Health is bringing new scientific results from studies in the Slovak and Czech Republics including prevention of chronic noncommunicable diseases as well as infectious diseases and antibiotic resistance.

Non-communicable Chronic Diseases

Research results about osteoporosis, also called silent epidemic, confirmed effect of the correct management and therapy on bone mineral density (BMD). Cooperation of the patients during the treatment of a chronic disease requiring long-term usage of medications is often problematic and it is necessary to devote adequate attention to it. The solution to improve the treatment can be active management of the patient by the medical facility or by the medical staff. We confirmed convincing effect of active management on the osteoporosis results in the outpatient department.

Another study is bringing results from epidemiology of prostate adenocarcinoma (CaP), which is one of the most common malignancies in men in Slovakia and worldwide. The disease accounts for more than 22% of all tumours in the male population. Screening studies show an increase in the diagnosis of CaP. Some cancer and chronic disease can be detected with specific antibody or inflammatory agents, where our study confirmed importance of PSA antigen in diagnosis of prostatic cancer.

Lifestyle factors can also have an impact on chronic disease – urolithiasis. High BMI, low fluid intake, exceeded red meat consumption, and low physical activity are the strongest factors for developing urolithiasis. Patients with diagnosis of urolithiasis should consume more fluids daily, lower amount of red meat and exercise frequently and vigorously.

Chronic skin disorder – psoriasis may be demonstrated as a multi-system disease affecting the skin and its adnexa. The association of psoriasis with comorbidities may significantly increase morbidity and total mortality of the patients as well as the demands for healthcare providers. Our study among psoriatic patients using personal medical history confirmed occurrence of arterial hypertension, occurrence of depression, type 2 diabetes, and dyslipidaemia.

Celiac diseases (CD) may have a later onset and extra-intestinal symptomatology, but without a clear explanation of causes and differences in their manifestations. Individual gene mutation identification could provide at least partial answers to these questions. Research on individual gene mutations will play an important role in the future of CD diagnostic algorithms, including improving CD diagnosis, CD classification and typology, and finally in CD treatment. Until mutations in the individual genes responsible for the disease are identified, cases of the atypical CD will still go unrecognised. This also applies to other related diseases. Research on mice models with one specific deactivated gene will help to discover links between several disorders associated with bowel damage, including atypical CD. The onset of multiple disorders is probably connected and initiated by individual gene mutations. Here, we must not neglect that other gene mutations may also play a role in the CD pathogenesis. It seems that the future of targeted biomedical, genetic research will improve our knowledge of CD pathophysiology, including clarifying links between gene mutations and CD related disorders.

The results of the tobacco study revealed the high consumption of tobacco products and the lack of knowledge and awareness of the harmful effects of electronic cigarettes (EC) among medical students in Bratislava. According to the study, EC use is rather frequent among university students. EC currently uses 13.5% of medical students, with a statistically significant difference between Slovak and foreign medical students who are more likely to smoke EC. In the present study, gender differences in prevalence rates were observed. Conventional cigarettes smokers used to vape more than non-smokers. E-cigarette cross-sectional study emphasizes the need for intervention in this field at medical faculties and supports further monitoring and comparing results in larger surveys in Slovakia and other countries. Our findings merit further consideration from research and policy perspectives as to the ongoing lack of EC regulations.

Results of social health research in the Czech Republic confirmed generational differences in foreigners relative to selected characteristics of social situation and health. As for integration, older generations are usually better adapted to Czech society, we found it very positive that members of this generation felt comfortable in the Czech Republic. The subjective assessment of health showed that older foreigners (aged 65+) perceived their health to be one level below that of Czech citizens. The middle generation of foreigners works hard and is only beginning to integrate into Czech society; nonetheless, they report feeling more comfortable in the Czech Republic than in their home country. The youngest generation (15–29 years) includes foreigners that are studying and working.

Infectious Diseases and Microbiology

Lyme disease is one of the most common vector-borne disease in Central and Eastern Europe. The study results show IgG-seropositivity for *Borrelia burgdorferi* in Eastern Slovakia is more predominant in men and occurs mainly in rural areas. The findings also suggest that exposure to *Borrelia burgdorferi* (with subsequent antibody response in serum) does occur, mostly without giving rise to clinical Lyme borreliosis.

Research outputs from microbiological analysis confirmed the occurrence of some mechanisms of antibiotic resistance in the gram-negative bacterium *Escherichia coli*, which often causes nosocomial infections. We determined the mechanisms of resistance by phenotypic methods and gene detection. The most frequently isolated strains were *E. coli* with the production of β -lactamases. From the clinical material of patients hospitalized in surgical wards during the observed period, the most frequently identified strains were *E. coli* with the production of β -lactamases of the AmpC type. The analysis showed that the most frequently detected type was beta-lactamase TEM, often together with SHV-1, an enzyme with a narrow spectrum of action.

Nosocomial infections are currently a real threat not only to all hospitalized patients but also to healthcare professionals. Infections acquired in hospital settings complicate the course of hospitalization, prolong the patient's stay in a medical facility, increase the economic costs of care, and often cause patient's death. Our microbiological results from 2 hospital wards (internal medicine and intensive care unit) are confirming higher antibiotic resistance of *Staphylococcus epidermidis* (oxacillin and cefoxitin) at the intensive care unit comparing with internal medicine department. Our results did not confirm the difference in antibiotic resistance between two departments concerning agent *Staphylococcus haemolyticus* and group of *Enterococci*.

Reproductive Health Studies

The results from effect of different factors on reproductive health results and neonatal health did not confirm the assumption that a positive relationship between mothers and fathers in the family can have a beneficial effect on reducing the incidence of premature births. It turned out that the level of support, conflict, and depth of the relationship with the child's father is approximately equal for mothers who gave birth prematurely and also for those who gave birth at term. However, as a positive relationship with the child's father has been shown to have a beneficial effect on the mother's behaviour during pregnancy and wellbeing, we recommend investigating whether and how this type of relationship can affect not only pregnancy but also the incidence of premature birth.

Another reproductive cross-sectional study confirmed that nicotine from maternal smoking is still the most prevalent substance of abuse during pregnancy in industrialized countries. Smoking cigarettes throughout pregnancy is one of the single most important avoidable causes of adverse pregnancy outcomes and it represents the first major environmental risk for the unborn. Despite so many related hazards, smoking is still frequent among pregnant women. Therefore, anti-nicotine education should include young women and should be continued by outpatient clinics for pregnant women. Tobacco prevention and cessation campaigns should focus on improving pregnancy outcomes in lower middle-income countries in the future.

Third gynaecological study examined some maternal risk factors associated with low birth weight (LBW) infants. Identification of factors which carry risk of LBW may help to attempt their correction and counselling when possible. Since a large proportion of foetal mortality is associated with LBW and because foetal development is a vulnerable process influenced by maternal risk factors, this modification will help in decreasing perinatal mortality and morbidity.

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