Introduction: The human microbiome is a complex ecosystem that varies considerably across the body and between individuals.[1] Postnatally the child is exposed to microorganisms from maternal and environmental sources and influenced by infant feeding, developing its own microbiome that will continue evolving throughout life.[2] Several studies have been carried out to determine the influence of the mode of delivery on the oral microbiome, and some influence on bacterial colonization has been verified.[3,4] However, the influence on oral fungal colonization is still unknown.

Methods: In 200 healthy students from the Faculty of Dentistry of University of Porto, colonization by yeast in the oral cavity was evaluated by collecting unstimulated saliva. Yeast isolation was performed by pour-plaque technique using Sabouraud Agar medium supplemented with chloramphenicol and ChromAgar Candida medium for species identification. Statistical analysis was performed using the chi-square test and t-test for independent samples.

Results: Participants' mean age was 21.61 ± 1.86 years old, with a total yeast prevalence of 37.5%. Candida albicans was the most isolated species present in 76.5% of the colonized participants. In comparison to caesarean section, the participants born by normal delivery presented higher oral yeast prevalence (41.6% vs. 25.8%, $p = 0.035$) and higher oral yeast load (13.68 ± 38.02 vs. 1.69 ± 0.62 Log CFU/mL, $p = 0.030$).

Conclusion: Our results suggest that delivery mode influences the oral mycobiome throughout life, specifically, normal delivery appears to promote the oral yeast colonization.

References

1. Ding T, Schloss PD. Dynamics and associations of microbial community types across the human body. Nature. 2014;509:357–60.
2. Sampaio-Maia B, Caldas IM, Pereira ML, Perez-Mongiovi D, Araujo R. The oral microbiome in health and its implication in oral and systemic diseases. Adv Appl Microbiol. 2016;97:171–210.
3. Lif Holgerson P, Harnevik L, Hernell O, Tanner AC, Johansson I. Mode of birth delivery affects oral microbiota in infants. J Dent Res. 2011;90:1183–8.
4. Ubeja RG, Bhat C. Mode of delivery and its influence on the acquisition of streptococcus mutans in infants. Int J Clin Pediatr Dent. 2016;9:326–9.

PS034

Why, how and when are patients with Chromosomal anomalies hospitalized?

Manuel Gonçalves-Pinho [1,2,*],
João Vasco Santos [1,2], Sílvia Fernández [1],
Micaela Gregório [1], Carla Pinto Moura [3,4],
Alberto Freitas [1,2]

[1] *Department of Community Medicine, Information and Health Decision Sciences (MEDCIDS), Faculty of Medicine, University of Porto, Rua Dr. Plácido da Costa, s/n, 4200-450 Porto, Portugal*
[2] *Center for Health Technology and Services Research (CINTESIS), Rua Dr. Plácido da Costa, s/n, 4200-450 Porto, Portugal*
[3] *Department of Human Genetics, Faculty of Medicine, University of Porto/Centro Hospitalar São João, Porto, Portugal*
[4] *Institute for Research and Innovation in Health/Instituto de Investigação e Inovação em Saúde, University of Porto, Porto, Portugal*
E-mail address: manuelpinho19@gmail.com
(M. Gonçalves-Pinho).

Aim: We aim to describe Chromosomal anomalies (CA) related hospitalizations characteristics and specific trends in order to understand why, how and when are these patients hospitalized.

Introduction: CA affect approximately 2% of the world population.[1] Due to this low prevalence not many studies regarding hospitalizations are available in this set of conditions. Hospitalizations represent an overall health and prognosis indicator that may allow the implementation of specific health care policies regarding prevention measures to avoid CA-related hospitalizations.

Methods: A retrospective observational study was performed using a national hospitalization database that gathers all public hospital admissions between 2000 and 2014. CA were selected based on codes $758.0\times$ to $758.7\times$ codified by the International Classification of Diseases – 9th Revision – Clinical Modification. Birth date, sex, charges, admission/discharge date, discharge status, primary/secondary diagnoses were analyzed for each specific CA.

Results: CA related hospitalizations accounted for 0.08% of all the hospitalizations. Down syndrome represented 75.9% of all CA-related hospitalizations and 80.2% (approximately 30M€) of all the charges attributed to CA related hospitalizations. The median age of CA-related patients was 9.0 years old. The leading causes of hospitalization in different CA varied between pneumonia (3.6–18.6%) and live birth related diagnoses (7.9–52.5%). Mean number of hospitalizations ranged from 1.0 to 2.1 per patient and mean charges per hospitalization varied from 2 339 to 4 520 €.

Conclusion: CA hospitalizations have high mean charges per hospitalization, high length of stay and high in-hospital mortality. Down syndrome accounts for the majority of CA hospitalizations, representing the CA with higher economic burden in the health system. Klinefelter syndrome hospitalizations occur at a younger age than the described mean age of diagnoses in all Klinefelter syndrome patients, a novel finding not previously described.

Reference

[1].Rimoin DL, et al. Nature and frequency of genetic disease. In: Emery and Rimoin's principles and practice of medical genetics; 2002. p. 55–9.

PS195

Efficiency of web application and spaced repetition algorithms as an aid in preparing to practical examination of histology

Dominik Karch [1,*], Krzysztofa Kopyt [1],
Aleksandra Gauden [1], Michal Nowakowski [2]

[1] *Student Research Group – Jagiellonian University Medical College, Poland*
[2] *Jagiellonian University Medical College, Department of Medical Education, Poland*
E-mail address: dexterdk@gmail.com
(D. Karch).

Aim: The aim of this study is to evaluate impact of using web application on the results of histology practical exam as well as to check if the SuperMemo-based algorithm is a useful tool in medical education.

Introduction: Students in medical disciplines are looking for new learning strategies. Computer applications are becoming more popular as they use a variety of methods to improve efficiency of studying. One of them is spaced repetition algorithm like SuperMemo.

Methods: We prepared web application which shows the photography of histological slide. Students had to decide if they have recognized the slide and the program was measuring time of each answer. Then the algorithm allocated new slide to display.

Users were randomly divided into two groups: study – where difficult slides were shown more frequently (SuperMemo2-based algorithm) and control – where the slides were displayed randomly.

Quality of the student's answers was evaluated according to the 6-point scale, where 0 means incorrect answer, and from 1 to 5 – correct answer depending on time.

We also took into consideration results of histology practical exam (0–15 points).

The level of statistical significance was set at $p < 0.05$.

Results: The study involved 204 first year medical students. The study group ($n = 98$) and control ($n = 106$) were similar in terms of the average number of responses in application (901 vs. 858; $p = 0.73$).

We have shown a statistically significant difference which indicate obtaining higher examination score by students who used our application – 11.8 vs. 10.98 ($p = 0.016$).

There was no superiority of spaced repetition algorithm over the random allocation of slides, based on the examination results (11.7 vs. 11.9; $p = 0.73$).

Conclusion: The usage of computer programs can be a valuable complement to traditional teaching methods. As we showed in this study it may have a measurable effect on examinations results of the students.

Acknowledgements: The approval of the Jagiellonian University Bioethics Committee was obtained.

The authors thank Prof. J.A. Litwin, Head of the Department of Histology Jagiellonian University Medical College for substantive supervision over the study.

PS008

The frequency of Human Parvovirus B19 infections in Vojvodina

M. Bugarski, T.A. Aleksandra Patić

Department for Microbiology with Parasitology and Immunology, Faculty of Medicine, University of Novi Sad, Serbia
E-mail address: marinabugarski@gmail.com
(M. Bugarski).

Aim: Determininating the seroprevalence of IgG antibodies among residents of Vojvodina, as well as the incidence of acute infections in different age groups and with different diagnoses, especially in women of generative age and pregnant women.

Introduction: Human Parvovirus B19 is a cause of infections in patients of all age groups. Clinical manifestations vary from asymptomatic to manifest infections such as erythema infectiosum, arthropathy, heart problems, and infections in immunodeficient patients. Acute infections during pregnancy present a distinct problem, which can result in intrauterine fetal death or hydrops fetalis.

Methods: The data presented in this study are the result of serological testing for the presence of HP-B19 infections performed at the Institute of Public Health of Vojvodina, Centre for Virology, in the period from November 2015 to November 2016. Detection of specific IgG and IgM antibodies was completed by analysing 472 serum samples. Samples were tested using the ELISA test manufactured by VIRION, Germany, in the VIRION Analyzer I-2P device.

Results: Of the total number of tested subjects, an acute infection was detected in 10.8% of the cases (11.7% of pregnant women, and 7.14% of children). An acute infection was confirmed in 13.9% of the patients in a febrile state, and 7.1% of the patients diagnosed with arthritis, immune deficiency, and heart failure. Seroprevalence of IgG antibodies was confirmed in 42.8% of the tested subjects, 36.8% of pregnant women, 60.78% of non-pregnant women of generative age, and 11.03% of children. In the total sample, 46.4% of the results were negative.

Conclusion: It can be concluded that Human Parvovirus B19 exist and circulates in the population of Vojvodina. The use of rapid serological tests enables a specific etiological diagnosis, timely implementation of appropriate infection control measures, and an appropriate treatment of patients, especially those belonging to high risk groups like pregnant women are.

PS211

E-cigarette: An effective tool to quit smoking or an additional source of nicotine?

Miłosz Knura [*], Tomasz Kurowski, Jakub Lubański, Paulina Majek, Mateusz Jankowski

Department of Epidemiology, Medical University of Silesia in Katowice, Poland
E-mail address: milosz.knura@wp.pl
(M. Knura).

Aim: We sought to evaluate the effectiveness of e-cigarette use as a tool to quit or reduce smoking.

Introduction: The electronic cigarettes (known as an "e-cigarettes") gaining on popularity, especially among young people. Available evidence regarding the relationship between e-cigarette usage as a tool in smoking cessation are inconsistent.

Methods: A population based survey was performed, in a group of 3800 students from three Universities in Katowice, Poland. Self-prepared, previously validated questionnaire, included questions on e-cigarette smoking habits.

Results: Completed questionnaires were obtained from 3000 students (response rate 78.9%; mean age = 21.5 ± 2.1 yrs) of which 70% were female (F) and 30% were male (M). E-smoking was declared by 3.5% of respondents (F: 3%, M: 4.9%; $p = 0.01$), wherein 1.5% of respondents smoked only e-cigarettes (F: 1.3%; M: 1.8%; $p = 0.3$) and 2.4% of subjects were dual smokers (F: 1.6%; M: 3%; $p = 0.01$). Almost one-third (33.7%) of e-smokers used e-cigarettes as an aid to quit smoking. Only 13.8% of e-smokers tired to give up e-smoking. Almost half of e-smokers (48.8%) tends to give up e-smoking in the nearest future. Reduction in cigarette consumption (mean 6.5 ± 5.0 cigarettes/daily) was observed by 50.8% of dual smokers. Only 4.4% of e-smokers used e-cigarettes without nicotine. Since they started e-smoking, constant concentration of nicotine in e-liquid was indicated by 61.4% of e-smokers, 12.5% increased (mean 8.7 ± 5.1 mg/ml) and 26.1% reduced (mean 8.2 ± 3.5 mg/ml) nicotine content in usually used e-liquid. Among e-smokers, 48.8% reported an addiction to e-cigarettes.

Conclusion: Smoking cessation was not the main reason for e-cigarette use among most of e-smokers. Low percent of e-smokers who use a non-nicotine e-liquid and almost half of e-smokers who declared addiction to e-cigarette, suggests that e-cigarette is rather an additional source of nicotine than effective tool in smoking cessation.