Title

Hand hygiene – knowledge, practical abilities and self-assessment among polish medical students.

Title and Research Question

Hand hygiene – knowledge, practical abilities and self-assessment among polish medical students.

Methods

Effective hand hygiene (HH) is considered by WHO as a primary measure to reduce incidence of health care associated infections (HCAI). In clinical hospitals, not only hands of healthcare personnel but also of medical students can contribute to the spread of HCAI, which is often forgotten.

What is the knowledge of HH guidelines among students?

How do they assess their knowledge? Can they properly disinfect hands?

Results

Two-phase pilot study was carried among 166 last-year medical students. In the first stage a self-designed questionnaire based on WHO recommendations about HH was used. In the second stage external observer judged correctness of Ayliffe hand disinfection technic (AT) and its final effect (by UV lamp and Medicheck application).

105/166 (63.0%) of students correctly answered ≥60% questions about hand hygiene. As many as 73.5% students declared in the survey knowledge about Ayliffe hand disinfection technic (female 78,2%; male 64.3%; p=0.0551) but it was confirmed by the external observer only in 55 (45,1%) cases. There was no statistically significant difference between genders (female 40.7% vs. male 55.6%; p=0.3458). Only 41,6% of all respondents disinfected their hands correctly. Preliminary findings are unsatisfactory.

Conclusion

We plan to continue studies among students of all years of study and then reassess them after 3 years to check the learning outcome. If it turns out that the problem affects majority of students, this may become a reason for changing university curriculum with emphasis on practical training in hand hygiene. This is particularly important because the personnel's hands are still responsible for 1/3 of HCAI.

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Title
Cesarean section and intestinal flora of the newborn

Title and Research Question
Cesarean section and intestinal flora of the newborn
Normal microbial colonisation process from the mother to the newborn is disrupted by birth by caesarean section (CS). We assess, whether in CS-delivered infants, the intestinal microbiome could be successfully and safely normalised by postnatal oral transfer of maternal faecal microbiome.
In this double-blinded randomised controlled trial started in autumn 2019, we assess the difference in heterogeneity of the intestinal microbiome between the two groups from birth to 24 months of age.
Methods
100 healthy pregnant women scheduled for elective CS are recruited at 35 weeks of gestation. After screening and randomisation, within two hours of delivery, the newborns are given 3.5 mg of the transplant from their own mothers or placebo (frozen water) mixed in mother's milk. The children are followed for 24 months. Stool and blood samples from the child and mother are collected during the follow up and analyses for changes in microbiome heterogeneity between the groups and to assess, for example, immunological changes associated with the transfer. The parents will fill out questionaries during the follow up.
Results
We have recruited 3 mothers. 2 were found positive in our screening tests (E. Coli EAEC, E. Coli EHEC and Dientamoeba fragilis) and 1 was randomized into either one of the groups. The newborn was asymptomatic at follow up and at 2 days of age had a CRP level of less than 4 and total leucocyte count of 16.
Conclusion
Recruitment is evaluated to continue until 11/2020. Our primary outcome measurement can be assessed when the last study subject turns 1 year of age, approximately 11/2021.
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Title

Carbapenem-resistant decolonization in children: Natural history and comparative analysis of negative rectal cultures with PCR

Title and Research Question

Carbapenem-resistant decolonization in children: Natural history and comparative analysis of negative rectal cultures with PCR

Methods

Research question: What is the natural history of spontaneous decolonization in infants and children colonized with carbapenem resistant Gram-negative bacteria? What is the sensitivity of three consecutive negative rectal swab cultures among high-risk pediatric patients to detect decolonization with Carbapenem-resistant bacteria in comparison to molecular methods? The aim of the study is to follow the natural history of carbapenem resistant colonized patients in the study for a 12-month period and to evaluate the decolonization status of the study population by comparing three negative rectal swab cultures with gene target amplification analysis.

Results

Methods: This will be a prospective cohort study contacted in Hippokration Hospital of Thessaloniki. Carbapenem-resistant colonized patients aged 1d-16y will be followed monthly for 12 months by microbiological antibiotic assay, starting with first positive rectal swab culture. Patient demographics, history, comorbidities, medication, nutrition and presence of medical implants will be recorded and risk factors for carbapenem-resistant decolonization will be identified. Microbiological eradication will be defined as three consecutive negative rectal swab cultures obtained at least 1 week apart. Patients will be screened to assess decolonization by both microbiological and molecular methods (PCR and RT-PCR). The molecular targeted analysis will consist of KPC and VIM, genes that are most commonly found in Greece. Although cultures are the common clinical practice to assess carbapenem-resistant decolonization, the diagnostic value of molecular analysis has not been studied.

Conclusion

Results: Work in progress.

Conclusion: The scientific breakthrough of the study is improvement of the clinical management in screening and monitoring decolonization of carbapenem-resistant pediatric carriers.

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Title
Cardiovascular status of children 5 years after Kawasaki disease (CAVASAKI)

Title and Research Question
Cardiovascular status of children 5 years after Kawasaki disease (CAVASAKI)

Methods
Research question
Kawasaki disease (KD) is an acute vasculitis that may lead to chronic cardiovascular damage. Cardiovascular risk is well defined in children who develop coronary artery aneurysms (CAA) in the acute phase of KD, whereas in children without such complications, the risk of further cardiovascular damage is unclear.
The present study aims to determine the cardiovascular status of children who had KD in the past and to identify possible biochemical markers of cardiovascular damage in those patients.
Results
Methods
In this cross-sectional study 62 children with history of KD will be examined 5 years after KD diagnosis and compared to their healthy siblings in terms of: serum levels of endothelial injury markers (circulating endothelial cells, endocan, soluble thrombomodulin, vascular endothelial growth factor and soluble E-selectin), central blood pressure, arterial stiffness parameters (measured by applanation tonometry), carotid intima-media thickness, capillaroscopy and echocardiography (ECHO). We recruit children from three Warsaw hospitals and via the support group at facebook.
ClinicalTrials.gov Identifier: NCT03750123
Results
Our work is in progress. We have identified 82 patients treated for KD within 2014-2019 and started examining children on 1.01.2019. Nineteen children have been examined so far: eleven KD patients and eight healthy controls.
[This abstract fulfills ERMC abstract guidelines]
Conclusion
At present, we found no significant differences between groups besides ECHO findings, which revealed dilated coronary arteries in children with a history of KD.
Conclusions
Our study aims at determining if KD leads to any chronic cardiovascular damage in both complicated and uncomplicated cases and to identify biochemical markers of such damage.
[This abstract fulfills ERMC abstract guidelines whereas this form seems to be demanding case presentation specifications]

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Title

IS THERE ANY DIFFERENCE IN INFLAMMATORY CEREBROSPINAL FLUID MARKERS BETWEEN ZIKA-EXPOSED NEONATES WITH OR WITHOUT MICROCEPHALY?

Title and Research Question

IS THERE ANY DIFFERENCE IN INFLAMMATORY CEREBROSPINAL FLUID MARKERS BETWEEN ZIKA-EXPOSED NEONATES WITH OR WITHOUT MICROCEPHALY?

Methods

Research question

We have previously shown that among neonates exposed to Zika virus (ZIKV) during foetal life born with microcephaly cerebrospinal fluid (CSF) protein is significantly increased. In this study, we aimed to compare inflammatory markers in the CSF of ZIKV-exposed neonates with and without microcephaly (cases) and neonates not exposed to ZIKV during pregnancy, without other congenital infection, microcephaly nor central nervous system illness.

Results

Methods

We identified 14 neonates who underwent lumbar puncture in the Cerebrospinal Fluid Laboratory in Salvador, Brazil, during the ZIKV epidemic. All mothers reported ZIKV clinical symptoms during gestation. Then, we identified neonates who underwent lumbar puncture in the same Lab and fulfilled criteria to be controls: age ≤ 4 days, CSF White Blood Cell count ≤ 8/mm^3, CSF protein ≤ 132mg/dL, CSF Red Blood Cell count ≤ 1,000/mm^3, no Central Nervous System illness, no congenital infection, nor microcephaly. 29 cytokines were measured and compared as median (p25th-p75th).

Results

Fourteen controls were included and tapped due to sepsis (n=6), maternal syphilis (n=5), seizure, fever without source, and maternal acute cytomegalovirus infection (n=1 each). Congenital syphilis and cytomegalovirus infection were ruled out.

Conclusion

GCSF (16.0[12.9-19.6] *vs.* 13.0[11.0-14.3]; p=0.047), IL1A (31.0[20.6-39.3] *vs.* 18.2[13.8-22.5]; p=0.008), IL7 (13.3[11.9-14.4] *vs.* 11.5[9.8-13.5]; p=0.048), IP10 (1425.5[657.8-2274.6] *vs.* 447.8[182.5-1358.0]; p=0.031) were significantly higher among controls. Conversely, IL4 (10.0[9.5-10.7] *vs.* 11.5[10.2-13.0]; p=0.01) was significantly higher among cases with microcephaly in regard to controls.

Conclusion

Our results suggest that neonates exposed to ZIKV during foetal life find it difficult to mount an immune response, along with exacerbated activity of antibody-producing cells.

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Title

BRIDGING MOLECULAR DIAGNOSTICS AND IMMUNE BIOMARKERS IN DIAGNOSIS OF VENTILATORASSOCIATED PNEUMONIA IN CRITICALLY-ILL CHILDREN

Title and Research Question

Bridging molecular diagnostics and immune biomarkers in diagnosis of ventilatorassociated pneumonia in critically-ill children

Methods

As the development of an assay able to early diagnose Ventilator Associated Pneumonia in critically ill children remains a **challenge**, we will determine the prognostic value of a rapid molecular diagnostic platform and an immune response signature on early VAP diagnosis, follow-up and VAP resolution in critically ill children**. We am to** Develop of molecular and immune diagnostic biomarkers for accurate and early VAP diagnosis.

Results

This project aims to achieve the **following objectives**:1) to evaluate the simultaneous detection of a respiratory panel of VAP-associated pathogens together with the most prevalent antimicrobial resistance genes, 2) to assess the value of immune biomarkers in lower respiratory tract aspirate and in blood for **early VAP diagnosisand follow**up in critically ill children, 3) to combine, clinical signs and symptoms with molecular diagnostics and immune response profiling for biomarker discovery and accurate early VAP diagnosis.

Patient recruitment and follow-up will include informed parental consent, inclusion/exclusion/withdrawal criteria for study participants, verification of eligibility criteria, sample collection, clinical examination findings and local laboratory tests. Samples from appropriate lower respiratory tract aspirate (ALRTA) will be obtained within 24h of patient enrollment. Microorganism identification and antibiotic susceptibility testing will be performed using the Vitek2 testing system.

Conclusion

Real-time multiplex PCR will be employed for the detection of a panel of VAP-associated pathogens and prevalent β-lactam resistance genes. The levels of plasminogen activation inhibitor, soluble triggering receptor, receptor for advanced glycation end-products,IL-1β, IL-8, IL-4, pentraxin 3 and surfactant protein D levels in appropriate lower respiratory tract aspirates and procalcitonin, SPD and PTX3 in serum will be measured by ELISA.

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