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HOSPITALISATION WITH ROTAVIRUS GASTROENTERITIS BEFORE AND AFTER ROTAVIRUS VACCINE INTRODUCTION

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Background Rotavirus (RV) remains one of the most common causes of acute infectious gastroenteritis (GE) worldwide.¹ In developed countries, mortality due to rotavirus is low, however, the morbidity and direct healthcare costs such as laboratory tests, medications, medical care and accommodation costs associated with hospitalisations are considerably high.² There are also the indirect economic costs such as parental work days missed. Ireland introduced Rotarix[®] vaccine, a monovalent, live attenuated, oral vaccination against RV into the primary Childhood Immunisation Schedule for all children born on or after 1st October 2016.

Aim Median cost- per- episode of laboratory confirmed RV infection requiring hospitalisation in Galway University Hospital (GUH) before and after RV vaccine introduction.

Methods Data was collected retrospectively over 2 separate 1-year periods (2014 and 2017) in the Paediatric department GUH, a regional hospital in west of Ireland. All Children under 5 years admitted to hospital with laboratory confirmed RVGE were included. Information regarding the length of stay, direct costs, demographic details were collected from the medical notes. Indirect costs were collected from parents over the phone.

Results There was a 57% reduction in children admitted with RVGE in 2017 (n=45) after vaccine introduction compared with RVGE admissions in 2014 (n=105) in GUH. The median age admitted was 1.5 years (range 1–4) in 2014 and 1.6 years (range 0.3–4.5) in 2017. The median length of stay was unchanged; 2 nights (range 1–6) in 2014 and 2 nights (range 1–4) in 2017. The median direct cost per child per admission in 2014 was €1601 and €1705 in 2017. The total cost of RVGE admissions in GUH was reduced from €160,958 in 2014 to €77,109 in 2017 resulting in a saving of €83,849.

Conclusion There was a 57% reduction in the number of hospitalisations due to RVGE in GUH in 2017- the first year after introduction of the RV vaccine in Ireland. This resulted in a direct saving of €83,849 in 2017. This provides early evidence of the public health benefit of introducing the RV vaccine into the national immunisation programme in Ireland.

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PARENTAL ATTITUDES TO UNIVERSAL ANNUAL PAEDIATRIC INFLUENZA IMMUNIZATION

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Introduction Influenza is a highly infectious, acute viral respiratory tract infection which can cause severe or even fatal

complications in young children. Vaccinating healthy children would provide herd immunity against seasonal influenza which has a significant disease burden with increases in both prevalence and severity in recent years.¹ As Ireland anticipates possible recommendations for universal annual paediatric influenza vaccine, it is important to identify factors that may affect vaccine uptake.

Aim To explore parental knowledge and attitudes towards influenza infection and potential factors affecting willingness to routinely vaccinate their child (ren).

Methods This descriptive study involved interviewing parents (n=300) attending the paediatric outpatient department (OPD) at University Hospital Galway (UHG). UHG is a regional hospital with dedicated paediatric services. OPD clinics occur daily, morning and afternoon, general and subspecialty clinics. A pilot study assisted with standardizing the questionnaire and in optimizing the clinical catchment area (Emergency Department vs. post-natal ward vs. OPD clinics). Galway Clinical Research Ethics Committee granted the ethical approval and data was analyzed using SPSS.

Results The majority of respondents were Irish (251, 83.7%), 236 (78.7%) with private health insurance. The most frequent age range was 31–40 years (163, 54.3%). Less than 40% had a Bachelor's degree (113, 37.7%) as their highest education level. Most participants (226, 75.3%) agreed with annual influenza vaccine for their child if recommended.

The following factors were shown to positively affect potential annual influenza vaccine uptake, $p < 0.05$, (N and % supporting routine influenza vaccine):

Positive general perception towards childhood immunization (217, 96.1%)

Parents who received the influenza vaccine (127, 56.2%)

Mothers who received the influenza vaccine antenatally (81, 42.4%)

Positive childhood immunization experiences (223, 98.7%)

Amongst community supporting influenza vaccination (167, 73.9%)

No concerns about influenza vaccine (200, 88.5%)

High test score for parental knowledge on influenza vaccine (33.6%, N= 76, achieved full marks, mean score = 4.57 ± 1.28).

Conclusion The overall feedback for routine paediatric influenza vaccination was positive. Parental knowledge, attitudes, prior history of vaccination and social norms each had an independent influence on parents' willingness to vaccinate their child. A general lack of awareness of paediatric influenza immunization was highlighted and demonstrates the need to improve immunization awareness strategies.

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MEASLES A PREVENTABLE DISEASE THROUGH VACCINATION, BUT STILL A DEADLY MENACE IN EUROPE

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Introduction Measles is a preventable disease through vaccination. In spite of the vaccine introduced in 1979 [1], an important outbreak is ongoing in Romania since 2017 [2].

We performed a retrospective study, which included 330 patients with measles, aiming to obtain data for vaccination status and possible correlations with clinical complications. The identified viral genotype was B3, strain MVs/Dublin.IRL/8.16, which is not the usual one circulating in Romania [1], [2].

Methods Retrospective statistical data analysis was performed (SPSS), based on information obtained from medical documents (clinical forms, complications, immunization status).

Inclusion criteria - patients presenting with clinical symptoms (fever; cough; coryza; maculopapular exanthema) admitted into 'Dr V. Babes' Clinical Hospital, in a 2 year period (2016–2017). Cases were stratified (severe/mild) based on the presence of complication (pneumonia, diarrhoea, dehydration). Cases without laboratory confirmation, using the ELISA method for specific serum IgM antibodies or viral RNA detection by RT-PCR, were excluded from the study.

Results The most affected age categories were between 1–4 years with 40.9% (N=135), similar to reported ECDC data [1].

In the studied group, 50.9% (N=168) of the patients had not been vaccinated, while 14.2% (N=47) were infected in spite of being immunized with one or two MMR vaccine doses. For 115 patients (34.8%) the immunization status was unknown.

The non-immunised patients were more likely to develop a severe form of the disease (92.9%, N=156), in comparison with the vaccinated individuals who associated a complication in 85.1% (N=40) of cases.

A mild form of Measles was reported in 7.1% (N=12) of unvaccinated patients and in 14.9% (N=7) of previously immunised individuals.

It was a statistically significant correlation between the vaccination status and the clinical form of the disease ($\chi^2=334.203$, df=4, $P<0.001$).

Discussions In Romania, the vaccination coverage for the first dose of MMR was in 2017 - 86% and for the second dose 75% [4].

In order to respond to the outbreak, Romania has lowered the age of administering the first vaccine dose from 12 to 9 months [5].

Since 2017 the number of reported cases has increased with 53.6% (N=15.971), and to date, 60 deaths have been reported, the majority of which occurred in persons who were not vaccinated [6], [7].

Conclusions Drop in vaccination rate is the main reason for the measles outbreak in Romania.

Vaccination statistically represented a protection factor against complications.

Better public information may improve the general acceptance of the vaccination scheme.

GP191 DYSREGULATION OF THE INFLAMMASOME IN CHILDREN WITH DOWN SYNDROME

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Aims Children with Down Syndrome (DS) are at an increased risk of infection and sepsis, and other inflammatory conditions such as arthritis. Various forms of immune dysregulation have been documented in DS including lymphopaenia, altered serum cytokines, reduced response to vaccinations as well as leukaemias. The NLRP3 (NLR family pyrin domain containing 3) inflammasome is a multiprotein complex that generates pro-inflammatory cytokines as part of the innate immune response to infection and is implicated in several inflammatory disorders. NLRP3 is also an important target for anti-inflammatory therapies. We aimed to characterize gene expression of the NLRP3 inflammasome in children with DS.

Methods Peripheral venous whole blood samples were collected from children with DS (n=18) and healthy age-matched paediatric controls (n=10). Whole blood samples were treated with lipopolysaccharide (LPS), melatonin or both. Whole blood RNA was isolated, cDNA was synthesized and analysed by quantitative PCR for expression of NLRP3, ASC (Apoptosis-associated speck like protein containing a caspase recruitment domain) and IL-1 β (Interleukin-1 β). Statistical analysis was performed using ANOVA and t-test with Graphpad Prism Version 7.0.

Results The expression of NLRP3 and IL-1 β was similar between children with DS and controls at baseline. ASC was significantly reduced in children with DS ($p=0.0003$). Both cohorts demonstrated a significant rise in the expression of IL-1 β following treatment with LPS ($p\leq 0.0001$). Melatonin significantly attenuated IL-1 β expression in children with DS, this was not demonstrated for the control group ($p\leq 0.0001$).

Conclusion Dysfunction of various elements of the inflammasome and its associated regulatory genes could be responsible for increased susceptibility to infection in children with DS. Melatonin significantly reduces IL-1 β expression following LPS and may be beneficial as an adjunctive therapy in children with DS.

GP192 THE TREATMENTS AND PROGNOSIS OF 50 CASES OF CGD PATIENTS IN SINGLE CENTER OF CHINA

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Background and aims Chronic granulomatous disease (CGD) is a rare primary immunodeficiency caused by mutations in the NADPH oxidase in phagocytic leucocytes, leading to severe life-threatening bacterial and fungal infections. The most common treatments are prophylactic antibiotics sulfamethoxazole (SMZ) and occasionally antifungal or anti-tuberculosis therapy. Haemopoietic stem-cell transplantation (HSCT) is currently the only curative option for these patients. We summarized the treatments and prognosis of 50 cases of CGD patients in a single center in Chongqing, China.

Methods 50 CGD patients were recruited between 2005 and 2017 based on clinical diagnosis, survival analysis was performed. The primary endpoints were overall survival and event-free survival (EFS), frequency of infections, incidence of acute and chronic graft-versus-host disease (GVHD) after at least 18 months of follow-up.

Results SMZ was begun for all patients since diagnosis. The overall survival was 80%. Among the 50 patients enrolled, 20 X-linked CGD patients received HSCT with a success rate of 95%. 10 HLA-matched related-donor and 10 HLA-matched