ISRCTN76456378 https://doi.org/10.1186/ISRCTN76456378

Nasal samples from healthy children: towards prevention of pneumonia

Submission date
29/01/2018

Recruitment status
No longer recruiting

Registration date
12/02/2018

Overall study status
Completed

Last Edited
24/04/2019

Condition category
Infections and Infestations

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Streptococcus pneumoniae, is a type of bacteria that is an important cause of morbidity and mortality in children worldwide. At the same time healthy people often have this bacteria in the upper airway (nasopharynx) without any sign of disease (colonised) which is the main source for transmission to other people. The current pneumococcal conjugate vaccines (PCV) does not protect against all types of this group of bacteria. Novel vaccines aim to provide broader protection against pneumococcus and are currently being developed. To test these new vaccines in future we need to learn more about how the body responds to this bacteria. It has been observed in adults who are colonised for research purposes (experimentally) with this bacteria that a specific immune cell 'monocyte' is present in the airway that correlates with protection against carriage of this bacteria. It is important to understanding whether this immune mechanisms control carriage in children in order to test vaccines. The aim of this study is determine whether nasal monocytes control pneumococcus by assessing the nasal immune responses to pneumococcus in children.

Who can participate?
Children aged 1 to 5 years old who are waiting to undergo a minor procedure requiring general anesthesia.

What does the study involve?
Participants undergo their planned procedure. They have cells from their nose collected, as well as the nasal lining fluid and have a swab taken of the nose to assess bacteria presence. A throat swab is also collected. Blood samples are collected. There is no further follow up.

What are the possible benefits and risks of participating?
There are no direct benefits with participating. This study collects nasal samples in a non-invasive manner. A possible risk for participants related to the nasal scrape is a slight amount of blood due to scratching of the mucosal lining. In over 1000 such samples that we have collected from adult volunteers, we have not had any serious events related to sample collection. We have collected blood cultures in 20 adults that were sampled during five visits to see if this led to transient bacteremia. We did not detect any bacteremia following sample collection. In addition, we are collecting a blood sample, which at the discretion of the anaesthesist, can be collected

from the line used for administration of anaesthetics. Samples will be collected by experienced members of the clinical team. Study nurses, as well as researchers at LSTM, are working according to SOPs taking institutional risk assessments into accounts with regards to working with biological samples.

Where is the study run from?
Alder Hey Children's Hospital (UK)

When is the study starting and how long is it expected to run for?
March 2017 to September 2020

Who is funding the study?
1. Liverpool School of Tropical Medicine (UK)
2. Medical Research Council (UK)

Who is the main contact?
Mr Simon Jochems (Public)

Contact information

Type(s)
Scientific

Contact name
Dr Andrea Collins

Contact details
Liverpool Life Sciences Accelerator
1 Daulby Street
Liverpool
United Kingdom
L7 8XZ
+44 151 702 9439
Andrea.collins@lstmed.ac.uk

Additional identifiers

Protocol serial number
36936

Study information

Scientific Title
SNOT: Sampling the Nose Of Toddlers and Young Children

Acronym
SNOT

Study objectives

The aim of this study is determine whether nasal monocytes control pneumococcus by assessing the nasal immune responses to pneumococcus in children.

Ethics approval required
Old ethics approval format

Ethics approval(s)
NHS REC East Liverpool, 16/01/2018, ref: 17/NW/0663

Study design
; Observational; Design type: Cross-sectional

Primary study design
Observational

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Streptococcus pneumoniae colonisation

Interventions
Children aged 1-5 years are recruited to this study as UK carriage rates peak at 2 years and start to decline at 5 years. Children without a current infection awaiting a minor procedure that requires general anesthesia at Alder Hey Children's hospital are recruited. All samples are collected under general anesthesia to reduce potential discomfort and to not have to immobilize the participant during sample collection. All sample collection methods have been previously used in paediatric settings. Nasal cells are collected by gently scraping the inferior turbinate using curettes. Nasal lining fluid is collected using nasosorption devices (synthetic filter paper that adsorbs cytokines). A bacterial nasopharyngeal (NP) swab is collected to assess bacterial presence. An oropharyngeal throat swab is collected to measure viral presence. Up to 3mL of venous blood is collected to measure humoral and cellular immune responses in blood.

Intervention Type
Other

Primary outcome(s)
The frequency of monocytes in nasal microbiopsies of children carrying pneumococcus and those who don't is measured by flow cytometry at the study visit.

Key secondary outcome(s))
1. Pneumococcal carriage is measured using lyta qPCR from nasopharyngeal swabs at study visit
2. Viral infection is measured by multiplex PCR in children that carry pneumococcus or not at study visit
3. Cytokines in nasal lining fluid of children carrying pneumococcus or not is measured using Luminex at study visit
4. Nasal frequency of other immune cells potentially involved in control of carriage, i.e. neutrophils and CD4+ T cells, in children who carry and those who don't will be compared by flow cytometry at study visit
5. Nasal cells responses to in vitro stimulation with pneumococcus in children who carry

pneumococcus or not will be measured by Luminex at study visit
6. Immune cell frequency, phenotype and function will be measured in blood of children who carry pneumococcus or not using flow cytometry at study visit
7. Anntibody levels against pneumococcal capsule and proteins in children who carry pneumococcus or not will be measured using ELISA and multiplex at study visit

Completion date
01/09/2020

Eligibility

Key inclusion criteria
1. Children aged 1-5 years
2. Parent with fluent spoken English - to ensure a comprehensive understanding of the research project and the proposed involvement
3. Capacity of parent to give informed consent
4. Awaiting minor procedure requiring general anesthesia

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Key exclusion criteria
Exclusion criteria:
1. Taking daily medications that may affect the immune system e.g. systemic steroids or systemic corticosteroids.
2. Having received antibiotics in the preceding 28 days
3. History of respiratory infections requiring hospitalization
4. Involved in another clinical trial unless observational or in follow-up (non-interventional) phase.
5. Disease associated with altered immunity
6. Surgery related to infection
7. Asthma
8. Current severe acute respiratory infection

Date of first enrolment
01/03/2018

Date of final enrolment
01/09/2019

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Alder Hey Children's Hospital
E Prescot Road
Liverpool
United Kingdom
L14 5AB

Sponsor information

Organisation
Liverpool School of Tropical Medicine

ROR
https://ror.org/03svjbs84

Funder(s)

Funder type
Government

Funder Name
Liverpool School of Tropical Medicine

Funder Name
Medical Research Council

Alternative Name(s)
Medical Research Council (United Kingdom), UK Medical Research Council, MRC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication.

IPD sharing plan summary
Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Participant information sheet	version v10		01/04/2019	No	Yes
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes