ISRCTN21654693 https://doi.org/10.1186/ISRCTN21654693

Vaccination against chickenpox in immunosuppressed children with rheumatic diseases

Submission date
02/02/2018

Recruitment status
No longer recruiting

Registration date
12/02/2018

Overall study status
Completed

Last Edited
22/01/2019

Condition category
Musculoskeletal Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] Individual participant data

Plain English summary of protocol

Background and study aims
Chickenpox and herpes zoster are common infections that may be particularly severe in children with a suppressed immune system. It has been shown that vaccination with a live-virus chickenpox vaccine in children with cancer, HIV and after transplantation is very safe and effective. Most current guidelines, however, prevent children receiving intensive immunosuppressive treatment from live-virus vaccination due to concerns about safety and effectiveness. Current guidelines focus on the type of medication the patients are receiving. However, this is problematic since there is a growing number of antirheumatic medications and it is impossible to test the safety and effectiveness of vaccines in all of them. Therefore, in many countries, there is a large number of children with rheumatic diseases on immunosuppressive treatment who are at risk for severe chickenpox or herpes zoster. Children with rheumatic diseases often receive medications to suppress the immune system. It is suspected, however, that most children with rheumatic diseases on intensive immunosuppressive treatment may safely receive the chickenpox vaccine. A checklist has been developed to check the immune reaction of patients independent of the type of immunosuppressive treatment. The aim of this study is to find out whether children can be safely immunized after using this checklist.

Who can participate?
Children with rheumatic diseases on immunosuppressive treatment

What does the study involve?
Participants who demonstrate an adequate immune reaction on several simple tests receive the live-virus chickenpox vaccine, either once or twice (at least 6 weeks apart) based on whether the participant has previously received a dose of the vaccine. The safety of the vaccine is assessed by determining whether side effects have occurred, including flares of the rheumatic diseases, by sending out a questionnaire to the participants' families within 12 weeks after vaccination. Regarding effectiveness, serum varicella zoster virus IgG (antibody) levels are measured within 4 to 12 weeks after vaccination. Participants are also interviewed after a longer period of time (3 years) to determine whether cases of chickenpox or herpes zoster, both causes by varicella zoster virus, have occurred.

What are the possible benefits and risks of participating?
The possible benefits include protection against varicella zoster virus infection, a potential cause for severe disease among immunosuppressed patients. The possible risks include exposure to two vaccinations which may cause brief injection site reactions and may be less effective compared to people who are not immunosuppressed. The study involves taking blood samples to test immune system function.

Where is the study run from?
Deutsches Zentrum für Kinder- und Jugendrheumatologie (Germany)

When is the study starting and how long is it expected to run for?
January 2012 to May 2015

Who is funding the study?
Verein Hilfe für das rheumakranke Kind (a non-profit foundation supporting pediatric rheumatology) (Germany)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
1

Study information

Scientific Title

Varicella-Zoster-Virus vaccination in immunosuppressed children with rheumatic diseases using a pre-vaccination checklist

Study objectives
Children with rheumatic diseases on intensive immunosuppressive therapy may safely be immunized with the live-virus varicella vaccine after ensuring adequate immunologic reactivity via a checklist using several immunologic criteria.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Institutional Board of Ethics in Medical Research of the Bavarian Chamber of Physicians, 19/11 /2013, ref: 13072

Primary study design
Observational

Study design
Single-center open-label observational study

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Immunosuppression and pediatric rheumatic disease

Interventions
During the trial safety of the varicella zoster virus vaccine will be assessed by determining whether adverse effects have occurred, including flares of the pediatric rheumatic diseases by sending out a questionnaire to the participants' families within 12 weeks after vaccination. Regarding efficacy, serum varicella zoster virus IgG levels will be measured within 4 to 12 weeks after vaccination. Immunologic testing will also be carried out (blood count, differential count, total immune globulin levels, titers to inactivated vaccines, tuberculosis interferon gamma release assays, lymphocyte subpopulations). Furthermore, participants will be interviewed after a longer period of time (3 years) to determine whether cases of chickenpox or herpes zoster, both causes by varicella zoster virus, have occurred.

Intervention Type
Biological/Vaccine

Primary outcome(s)
Varicella zoster virus IgG level measured by commercial ELISA within 4 to 12 weeks after each vaccination

Key secondary outcome(s)
1. Safety, assessed using a questionnaire of possible adverse effects at 12 weeks after vaccination
2. Long-term clinical efficacy, assessed using an interview regarding the occurrence of chickenpox or herpes zoster after 3 years

Completion date
31/05/2015

Eligibility

Key inclusion criteria
1. Negative medical history for chickenpox and herpes zoster, corroborated by negative VZV-IgG level
2. Not more than 1 prior dose of the VZV vaccine
3. Diagnosis of an inflammatory pediatric rheumatic disease
4. Clinical inactive pediatric rheumatic disease
5. No change of IS for at least 3 months prior to the vaccination

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Sex
All

Key exclusion criteria
1. Acute febrile disease
2. Current clinical or laboratory evidence for lack of immunologic reactivity
3. Known hypersensitivity to constituents of the varicella vaccine
4. Measles, mumps, rubella (MMR) vaccination within 4 weeks prior to VZV vaccination
5. Treatment with immunosuppressive therapy other than those mentioned in the pre-vaccination checklist, i.e. i.v. glucocorticoid pulse therapy or a prednisone-equivalent dose of more than 2mg/kg/day or more than 20mg/day for > 2 weeks within less than 4 weeks prior to vaccination, cyclophosphamide pulse <6 months ago, rituximab without B-cell reconstitution, intravenous immune globulins (IVIG) <6 months ago (high-dose IVIG (2g/kg) <11 months), therapy with aspirin until 6 week post-vaccination or any blood products <3 months prior to vaccination

Date of first enrolment
01/04/2012

Date of final enrolment
31/05/2013

Locations

Countries of recruitment
Germany

Study participating centre
Deutsches Zentrum für Kinder- und Jugendrheumatologie
Gehfeldstr. 24
Garmisch-Partenkirchen
Germany
82467

Sponsor information

Organisation
German Center for Pediatric and Adolescent Rheumatology

ROR
https://ror.org/02mwtkt95

Funder(s)

Funder type
Charity

Funder Name
Verein Hilfe für das rheumakranke Kind (a non-profit foundation supporting pediatric rheumatology)

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are not expected to be made available.

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	02/03/2018	22/01/2019	Yes	No