Title	Chicken Pox and Cystic Fibrosis
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1. Introduction

Chicken pox is caused by the Varicella Zoster virus and can cause complications in CF patients e.g. pneumonia and encephalitis. There are no good data available to measure exact risk of complications, but approximately 10-12% of CF patients age ≥6 years are non-immune to chicken pox. Patients receiving immune-suppressant therapy are at high-risk of severe chicken pox infection and complications.

2. Definitions

2.1. Immunosuppression

Immunosuppression should be considered in:

- **Group A:** Prednisolone in the past 3 months @ 2mg/kg/day for 1 week or @ 1mg/kg/day for 1 month
- **Group B:** Organ-rejection therapy or other congenital or acquired cause of immunosuppression

2.2. Chicken Pox Immunity

Immunity assumption will vary according to any co-existing immunosuppression:

- **Group A or no Immunosuppression:** immunity to chicken pox can be assumed, with no need for VZ titre testing for any of the following groups:
  - A history of chickenpox or shingles
  - Two recorded doses of varicella vaccine
  - A recorded dose of shingles vaccine
  - A previous VZV IgG positive (≥ 150 mIU/ml) test
- **Group B:** prior immunity can be lost due to procedures such as stem cell transplant and so should be discussed with the On-call Microbiologist and re-tested as indicated

2.3. Chicken Pox Contacts

Index Contact Cases are:

- Chicken Pox 48 hours before onset of rash until crusting of lesions
- Disseminated zoster
- Immunocompetent individuals with exposed lesions e.g. ophthalmic zoster
- Immunosuppressed patients with localised zoster on any part of the body

Close contact is defined as:

- Contact in the same room (e.g. in a house or classroom or a two- to four-bed hospital bay) for a significant period of time (15 minutes or more)
- Face-to-face contact, e.g. while having a conversation

- Susceptible high-risk contacts on large open wards, due to potential airborne transmission/other contact

3. Treatment of Chicken Pox infection

3.1 All patients

Advise General Measures as recommended by NHS (https://www.nhs.uk/conditions/chickenpox/) – see Appendix 1 below

3.2 Patients who are not immunosuppressed

Prescribe oral aciclovir for 1 week (refer to BNFc for dose) if time from onset of rash is up to 24 hours

3.2 Patients who are immunosuppressed

Patients require

- Admission for clinical assessment
- Prompt treatment with appropriate drugs i.e. aciclovir, valaciclovir or famciclovir.
  NB Current guidance does not include Varicella Zoster Immunoglobulin (VZIG) unless antiviral drugs are contra-indicated.
- Discussion with On-call Microbiologist to agree the most appropriate antiviral drug, duration and route

4. Chicken Pox Contacts

CF Patients in close contact (see 2.3 above) with known Chicken Pox only require treatment if:

- No prior Chicken Pox infection or vaccination against VZ, and
- Immuno-suppressed (see criteria above)

This patient group requires

- Admission for clinical assessment
- VZ antibody assay if Group B Immunosuppressed (see 2.3 above)
- Discussion with On-call Microbiologist. Currently oral aciclovir is the first-choice drug for post-exposure prophylaxis, though valaciclovir has advantages (e.g. fewer doses, less side-effects and better bioavailability). Note:
  - Treatment will be given from day 7 to day 14 after exposure.
  - The day of exposure is defined as the date of the rash if the index is a household contact and date of first or only contact if the exposure is on multiple or single occasion(s)respectively.
  - If the patient presents after day 7 of exposure, a 7-day course of antivirals can be started up to day 14 after exposure, if necessary.

5. Vaccination

Vaccination against VZ is not part of the UK National Vaccination Programme, but to non-immune Healthcare Workers and healthy susceptible close household contacts of immunocompromised patients. However, due to the risk of developing allergic bronchopulmonary aspergillosis (and so require immune-suppressant prednisolone) the following is advised:

- VZ antibody assay measured at CF Annual Review age 6yrs
  - VZ antibody positive: assume immune life-long
  - VZ antibody negative: arrange VZ vaccination

6. References

- Public Health England Updated guidelines on post exposure prophylaxis (PEP) for varicella/shingles June 2019
- Green Book Chapter 34
- Brompton CF Guidelines
- NHS Helpline

Appendix 1

General Measures for Managing Chicken Pox

Do

- drink plenty of fluid (try ice lollies if your child is not drinking) to avoid dehydration
- take paracetamol to help with pain and discomfort
- put socks on your child's hands at night to stop scratching
- cut your child's nails
- use cooling creams or gels from your pharmacy
- speak to a pharmacist about using antihistamine medicine to help itching
- bathe in cool water and pat the skin dry (do not rub)
- dress in loose clothes
- check with your airline if you're going on holiday – many airlines will not allow you to fly with chickenpox

Don't

- do not use ibuprofen unless advised to do so by your doctor, as it may cause serious skin infections
- do not give aspirin to children under 16
- do not be around pregnant women, new-born babies and people with a weakened immune system, as it can be dangerous for them

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