User Guide to Management of Individuals Exposed to Varicella Zoster Virus (chickenpox or shingles)

A) Contents

B) Purpose and Scope

This guideline has been written to help decide on what testing and management is required for individuals exposed to varicella zoster virus. It is based on PHE guidance guidance (see Guidelines on post exposure prophylaxis(PEP) for Varicella/shingles-April 2022) and adapted for local use. Most, but not every case, will be covered by the document.

Over 90% of adults born or brought up in the UK will be immune, and many people with no history will actually have VZV IgG detected when tested. Where possible, any patient in whom prophylaxis is being considered should have their VZV IgG levels checked.

C) Responsibility and Training Requirements

Virology medics

D) Definitions

N/A

E) Procedure

If called / told about a VZV exposure (chickenpox or shingles):

1) Has exposure actually occurred?

- Confirm that a significant exposure has occurred
  a. Chickenpox: 15 minutes in same small room (e.g. house, classroom or hospital bay) or face to face contact, from 24 hours pre-rash onset until lesions healed
  b. Shingles in an immunocompetent patient: direct contact with vesicles or exposure to shingles at an uncovered site e.g. ophthalmic lesions, from rash onset until 5 days after onset of rash
  c. Shingles in an immunocompromised patient: rash at any site due to greater viral shedding including from the oropharynx, from rash onset until lesions healed
- Household exposures typically pose a greater risk of transmission.
- Confirm the exact date of exposure and date of onset of rash in index case

2) **Is patient in high-risk group**:
Assess if patient is in an 'at risk' group. These include:
a. Currently pregnant or <7 days post natal
b. Immunosuppressed (see Appendix 1 for definitions)
c. Neonate/ infant <1 year

3) Is rash illness in index case actually chickenpox?
Confirm how the diagnosis has been made in the index case (i.e source of exposure) – have they been seen by a health professional or are there plans to be seen, have they had any swabs taken? If in doubt about the diagnosis, ensure appropriate investigations/consultations are done.

4) Has patient had chickenpox in the past or has been vaccinated against VZV?
Clarify if there is a reliable history of chickenpox or shingles, were they seen by a health professional. For the sake of assessing immunity, history of chickenpox is defined as:

a. patient remembering being covered head to toe with a consistent rash / illness
b. confirmed by GP at the time, and / or documented in GP notes
c. confirmed by VZV DNA detection in a rash swab
d. parents specifying having chickenpox & not simply a rash illness

5) What to do if our patient is not in an 'at-risk' group?
If not in at-risk group, prophylaxis is generally not indicated (neither acyclovir or VZIG). Average incubation period for chickenpox is two weeks and there maybe infection control aspects one has to look out for, for those admitted in the hospital or ones contemplating a hospital visit. You should contact infection control department for further advice, if applicable.

If there are other medical concerns about a non-'at risk' patient, consider on a case-by-case basis whether aciclovir prophylaxis could be given, or if any other infection control measures (e.g. work exclusion) are required.

6) Management of high risk patients:
Contact Medical Virologist (on ext 66477, or bleep NGH 2437; out-of-hours via switchboard) to discuss post exposure prophylaxis. S/he will be able to advise further and it is quite likely that urgent testing for VZV IgG will be required as a first step. S/he will be able to see if a previous/current sample can be tested or any previous VZV IgG result can be relied upon. A fresh sample may be required.

7) What is the usual post exposure prophylaxis advised (If patient is susceptible and in High risk group?
- Antivirals(acyclovir/valaciclovir) are now recommended for post-exposure prophylaxis for all at risk groups apart from susceptible neonates exposed within one week of delivery.
- Varicella zoster immunoglobulin(VZIG) is recommended for susceptible neonates exposed within one week of delivery (either in utero or post-delivery) and in those for whom oral antivirals are contraindicated.VZIG is a blood-pooled product given by IM injection (any staff member trained to give IM injections can administer it). In individuals with renal impairment or intestinal malabsorption e.g. inflammatory bowel disease, aciclovir / valaciclovir dose adjustment or VZIG should be considered.

Table 1. Recommended doses of oral antivirals

	Oral Aciclovir	Oral Valaciclovir
Infants over 4 weeks to children under 2 years age	10mg/kg 4 times daily, days 7 to 14 after exposure	Not recommended
Children 2 to 17 years of age	10mg/kg (up to a maximum of 800mg), 4 times daily, from days 7 to 14 after exposure	20 mg/kg (up to a maximum 1,000mg) 3 times daily, from days 7 to 14 after exposure
Adults	800mg 4 times daily, from days 7 to 14 after exposure	1,000mg 3 times daily, from days 7 to 14 after exposure

8) How do I get hold of VZIG?

VZIG is issued by the Rabies and Immunoglobulin Service, UK Health Guidelines on post exposure prophylaxis (PEP) for varicella/shingles (April 2022) 10 Security Agency, Colindale (tel: 0330 128 1020), and some local UK HSA laboratories, following a risk assessment(when required).Varicella Zoster Immunoglobulin (VZIG) is a blood-pooled product given by IM injection (any staff member trained to give IM injections can administer it). If receiving a blood product or IM injection is contraindicated, alternative options are available – please discuss with a Consultant Virologist

Where issue of VZIG has been agreed, all necessary paperwork will be sorted out by Virology department. You will be required to make the appropriate prescription and arrange collection from NGH Pharmacy based at Huntsman, C floor. Pharmacy is happy for patients or relatives to pick this up and take to primary physician for administration. It's given as a one-off IM injection.

F) References and Related Documents

N/A

G) Appendices

Appendix 1: Definitions of Immunosuppressed patients

Individuals with primary or acquired immunodeficiency states due to conditions including:

• acute and chronic leukaemias, and clinically aggressive lymphomas (including Hodgkin's lymphoma) who are less than 12 months since achieving cure

• individuals under follow up for a chronic lymphoproliferative disorders including haematological malignancies such as indolent lymphoma, chronic lymphoid leukaemia, myeloma, Waldenstrom's macroglobulinemia and other plasma cell dyscrasias (note: this list not exhaustive)

• immunosuppression due to HIV/AIDS with a current CD4 count of below 200 cells/µl (aged 5 years or less, with a CD4 count below 500 cells/µl.)

• primary or acquired cellular and combined immune deficiencies – those with lymphopaenia (< 3g/L) due to primary immunodeficiency (for example common variable immunodeficiency) or secondary to disease or therapy

• those who have received an allogeneic (cells from a donor) or an autologous (using their own cells) stem cell transplant in the previous 24 months

• those who have received a stem cell transplant more than 24 months ago but have ongoing immunosuppression or graft versus host disease (GVHD)

• persistent agammaglobulinaemia (IgG < 3g/L) due to primary immunodeficiency (for example common variable immunodeficiency) or secondary to disease or therapy

Individuals on immunosuppressive or immunomodulating therapy including:

• those who are receiving or have received in the previous 6 months immunosuppressive therapy for a solid organ transplant

• those who are receiving or have received in the previous 3 months targeted therapy for autoimmune disease, such as JAK inhibitors or biologic immune modulators including B-cell targeted therapies (including rituximab but for which a 6 month period should be considered immunosuppressive), monoclonal tumour necrosis factor inhibitors (TNFi), T-cell co-stimulation modulators, soluble TNF receptors, interleukin (IL)-6 receptor inhibitors, IL-17 inhibitors, IL 12/23 inhibitors, IL 23 inhibitors (note: this list is not exhaustive)

• those who are receiving or have received in the past 6 months immunosuppressive chemotherapy or radiotherapy for any indication

Individuals with chronic immune mediated inflammatory disease who are receiving or have received immunosuppressive therapy:

• moderate to high dose corticosteroids (equivalent ≥20mg prednisolone per day; children 1 mg/kg/day) for more than 10 days in the previous month

• long term moderate dose corticosteroids (equivalent to ≥10mg prednisolone per day or children 0.5 mg/kg/day for more than 4 weeks) in the previous 3 months

• adults on non-biological oral immune modulating drugs for example methotrexate >20mg per week (oral and subcutaneous), azathioprine >3.0mg/kg/day; 6- mercaptopurine >1.5mg/kg/day, mycophenolate >1g/day, in the previous 3 months

• children on any dose of non-biological oral immune modulating drugs

• certain combination therapies at individual doses lower than stated above, including those on ≥7.5mg prednisolone per day in combination with other immunosuppressants (other than hydroxychloroquine or sulfasalazine) and those receiving methotrexate (any dose) with leflunomide in the previous 3 months

Note-

- Individuals who have received a short course of high dose steroids (equivalent >40mg prednisolone per day or children 2 mg/kg/day for more than a week) for any reason in the previous month.

- Individuals who had received brief immunosuppression (≤40mg prednisolone per day) for an acute episode (for example asthma / chronic obstructive pulmonary disease (COPD) / coronavirus (COVID-19)) and individuals on replacement corticosteroids for adrenal insufficiency

  -are not considered severely immunosuppressed and can be treated with the standard post exposure treatment