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### Literature search results

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#### Search details

Chickenpox and varicella cerebellitis in children. Management with steroids/acyclovir

#### Resources searched

NHS Evidence; TRIP Database; Cochrane Library; EMBASE; MEDLINE

**Database search terms:** (chickenpox OR "chicken pox"), exp CHICKENPOX, "varicella zoster", varicella, exp VARICELLA ZOSTER VIRUS, "varicella cerebellitis", "post viral cerebellar ataxia", "acute cerebellitis", "acute cerebellar ataxia", cerebellitis, exp CEREBELLUM DISEASE/ OR exp CEREBELLAR ATAXIA, (zovirax OR aciclovir), acyclovir, steroid*, (cyclovir OR herpex OR acivir OR acivirax OR zoral OR xovir OR imavir), exp ACICLOVIR, exp STEROID, manag*, therap*, treat*

**Evidence search string(s):** (chickenpox OR varicella) (cerebellitis OR cerebellar) aciclovir

#### Summary

Unfortunately there is very little secondary evidence concerning chickenpox, cerebellitis and its treatment. I’ve added the relevant primary research articles from my search.

#### Guidelines and Policy

BNF for Children

Aciclovir. 2014

#### Evidence-based reviews

Cochrane Database of Systematic Reviews

Acyclovir for treating varicella in otherwise healthy children and adolescents. 2005
Acyclovir appears to be effective in reducing the number of days with fever and the maximum number of lesions among otherwise healthy children with chickenpox. The results were less convincing with respect to the number of days to no new lesions and relief of itchiness. The clinical importance of acyclovir treatment in otherwise healthy children remains uncertain.

**Published research – Databases**

**Early diagnosis and effective drug treatment essential for optimal management of acute viral infections of the CNS**

**Author(s)**

**Citation:** Drugs and Therapy Perspectives, December 2013, vol./is. 29/12(387-391), 1172-0360:1179-1977 (December 2013)

**Publication Date:** December 2013

**Abstract:** Effective management of acute viral infections of the CNS has improved substantially recently, with the use of sensitive diagnostic methods and the availability of effective drug therapies. Best evidence exists for the use of aciclovir (acyclovir) in the treatment of herpesvirus infections; certain other antiviral drugs may be useful treatment options for viral CNS infections. Despite advances in the management of viral CNS infections, there remains a need for new and better therapies. 2013 Springer International Publishing Switzerland.

**Source:** EMBASE

**Complications of varicella zoster virus reactivation.**

**Author(s)** Nagel MA, Gilden D

**Citation:** Current Treatment Options in Neurology, August 2013, vol./is. 15/4(439-53), 1092-8480;1092-8480 (2013 Aug)

**Publication Date:** August 2013

**Abstract:** OPINION STATEMENT: Varicella zoster virus (VZV) is an exclusively human neurotropic alphaherpesvirus. Primary infection causes varicella (chickenpox), after which virus becomes latent in ganglionic neurons along the entire neuraxis. With advancing age or immunosuppression, cell-mediated immunity to VZV declines and virus reactivates to cause zoster (shingles), which can occur anywhere on the body. Skin lesions resolve within 1-2 weeks, while complete cessation of pain usually takes 4-6 weeks. Zoster can be followed by chronic pain (postherpetic neuralgia), cranial nerve palsies, zoster paresis, meningoencephalitis, cerebellitis, myelopathy, multiple ocular disorders and vasculopathy that can mimic giant cell arteritis. All of the neurological and ocular disorders listed above may also develop without rash. Diagnosis of VZV-induced neurological disease may require examination of cerebrospinal fluid (CSF), serum and/or ocular fluids. In the absence of rash in a patient with neurological disease potentially due to VZV, CSF should be examined for VZV DNA by PCR and for anti-VZV IgG and IgM. Detection of VZV IgG antibody in CSF is superior to detection of VZV DNA in CSF to diagnose vasculopathy, recurrent myelopathy, and brainstem encephalitis. Oral antiviral drugs speed healing of rash and shorten acute pain. Immunocompromised patients require intravenous acyclovir. First-line treatments for post-herpetic neuralgia include tricyclic antidepressants, gabapentin, pregabalin, and topical lidocaine patches. VZV vasculopathy, meningoencephalitis, and myelitis are all treated with intravenous acyclovir.

**Source:** Medline

**Acute cerebellar ataxia in childhood: Initial approach in the emergency department.**

**Author(s)** Salas AA, Nava A

**Citation:** Emergency Medicine Journal, December 2010, vol./is. 27/12(956-7), 1472-0205;1472-0213 (2010 Dec)

**Publication Date:** December 2010

**Abstract:** Acute childhood ataxia is a relatively common presenting complaint in paediatric emergency settings. Because life-threatening causes of pure ataxia are rare in children, an approach in a stepwise fashion is recommended. Acute cerebellar ataxia is the most common cause of childhood ataxia, accounting for about 30-50% of all cases. Varicella is the most commonly associated virus. Post-varicella acute cerebellar ataxia (PVACA) is the most common neurological complication of varicella, occurring about once in 4000 varicella cases among children younger than 15&emsp14;years of age, even in the postvaccine era.
We describe an unimmunised child with PVACA to remind emergency physicians about its autoimmune pathogenesis. We also briefly discuss current controversies about the diagnostic approach and management.

Source: Medline
Available in fulltext from Emergency Medicine Journal at Free Access Content
Available in fulltext from Emergency Medicine Journal at EBSCOhost
Available in fulltext from Emergency Medicine Journal : EMJ at National Library of Medicine

Post chickenpox neurological sequelae: Three distinct presentations.
Author(s) Paul R, Singhania P, Hashmi M, Bandyopadhyay R, Banerjee AK
Citation: Journal of Neurosciences in Rural Practice, July 2010, vol./is. 1/2(92-6), 0976-3155;0976-3155 (2010 Jul)
Publication Date: July 2010
Abstract: Varicella zoster infection is known to cause neurological involvement. The infection is usually self-limiting and resolves without sequelae. We present a series of three cases with neurological presentations following chickenpox infection. The first case is a case of meningitis, cerebellitis and polyradiculopathy, the second is a florid case of acute infective demyelinating polyradiculoneuropathy (Guillain-Barre syndrome) in a middle-aged female and the third case is a young man in whom we diagnosed acute transverse myelitis. All these cases presented with distinct neurological diagnoses and the etiology was established on the basis of history and serological tests confirmatory for chickenpox. The cases responded differently to treatment and the patients were left with minimum disability.

Source: Medline
Available in fulltext from Journal of Neurosciences in Rural Practice at Directory of Open Access Journals
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Available in fulltext at Journal of Neurosciences in Rural Practice; Collection notes: On first login to a ProQuest journal you will need to select 'Athens (OpenAthens Federation)' from Select Region, and then 'NHS England' from Choose your Library.

The treatment of varicella-zoster virus infection and its complications
Author(s) Partridge D.G., McKendrick M.W.
Citation: Expert Opinion on Pharmacotherapy, April 2009, vol./is. 10/5(797-812), 1465-6566 (April 2009)
Publication Date: April 2009
Abstract: Background: Varicella, zoster and their complications remain important causes of morbidity and mortality in a population containing increasing numbers of elderly or immunocompromised individuals. Objective: To review varicella-zoster virus pathogenesis and current therapeutic options. Methods: The English-language literature related to varicella-zoster virus, its associated diseases, complications and treatments was identified using the Pubmed search engine, examination of reference lists of reviewed articles and the authors' personal knowledge. Focus was placed on those studies and meta-analyses performed within the past 5 years. Results/conclusions: Antiviral agents may be used to prevent or treat the complications of varicella or zoster in a variety of patient groups. The oral prodrugs valaciclovir and famciclovir have an expanding role in the management of disease. A stepwise approach to the management of post-herpetic neuralgia should be employed in affected patients with tricyclic antidepressants and a2a ligands as first-line agents. 2009 Informa UK Ltd. All rights reserved.
Source: EMBASE

Chickenpox: An update
Author(s) Leung A.K.C., Kellner J.D., Davies H.D.
Citation: Journal of Pediatric Infectious Diseases, 2009, vol./is. 4/4(343-350), 1305-7707 (2009)
Publication Date: 2009
Abstract: Chickenpox, caused by the varicella-zoster virus, is mostly a mild disease in healthy children, but can be debilitating in immunocompromised individuals or susceptible adults. The disease is highly contagious. The lesions start as rose-colored macules, and progress rapidly to become papules, vesicles with the classic "dew drop on a rose petal" appearance, pustules and, finally, crusts. The distribution of the lesions is typically central, with the greatest concentrations on the trunk. Characteristically, lesions are intensely
pruritic and appear in crops. The most common complication associated with chickenpox is secondary bacterial infections of the skin followed by post-inflammatory scarring of the lesions. The diagnosis is mainly clinical and treatment symptomatic. Oral acyclovir should be considered in high-risk individuals. Intravenous acyclovir is effective for the treatment of chickenpox in immunocompromised individuals and for serious complications of chickenpox in normal patients. To eradicate chickenpox, universal childhood immunization with varicella vaccine is the way to go. The Advisory Committee for Immunization Practices of the Centers for Disease Control and Prevention and the American Academy of Pediatrics recommend a routine two-dose varicella vaccination program for children, with the first dose administered at 12 to 18 months and the second dose at 4 to 6 years of age. The Advisory Committee on Immunization Practices further recommends two doses of varicella vaccine, 4 to 8 weeks apart, for all susceptible adolescents and adults and a catch-up second dose for everyone who received one dose of varicella vaccine previously. 2009 IOS Press. All rights reserved.

Source: EMBASE

Neurological complications of chickenpox
Author(s) Girija A.S., Rafeeqe M., Abdurehman K.P.
Citation: Annals of Indian Academy of Neurology, October 2007, vol./is. 10/4(240-246), 0972-2327 (01 Oct 2007)
Publication Date: October 2007
Abstract: Aim: To assess the neurological complications of chickenpox with prognosis. Background: The neurological complications occur in 0.03% of persons who get chickenpox. There is no universal vaccination against chickenpox in India. Most patients prefer alternate modalities of treatment. Hence these complications of chickenpox are likely to continue to occur. Study Design: A prospective study was conducted for 2 years (from March 2002) on the admitted cases with neurological complications after chickenpox (with rash or scar). Patients were investigated with CT/MRI, CSF study, EEG and nerve conduction studies and hematological workup. They were followed-up for 1 year and outcome assessed using modified Rankin scale. Results: The latency for the neurological complications was 4-32 days (mean: 16.32 days). There were 18 cases: 10 adults (64%) and 8 children (36%). Cerebellar ataxia (normal CT/MRI) was observed in 7 cases (32%) (mean age: 6.85 years). One patient (6 years) had acute right hemiparesis in the fifth week due to left capsular infarct. All these cases spontaneously recovered by 4 weeks. The age range of the adult patients was 13-47 years (mean: 27 years). The manifestations included cerebellar and pyramidal signs (n-4) with features of demyelination in MRI who recovered spontaneously or with methylprednisolone by 8 weeks. Patient with encephalitis recovered in 2 weeks with acyclovir. Guillain Barre syndrome of the demyelinating type (n-2) was treated with Intravenous immunoglobulin (IVIG) and they had a slow recovery by a modified Rankin scale (mRs) score of 3 and 2 at 6 months and 1 year, respectively. One case died after hemorrhage into the occipital infarct. There were two cases of asymmetrical neuropathy, one each of the seventh cranial and brachial neuritis. Conclusion: Spontaneous recovery occurs in post-chickenpox cerebellar ataxia. Rarely, serious complications can occur in adults. The demyelinating disorders, either of the central or peripheral nervous system, can be effectively managed using methylprednisolone or I/V IG.

Source: EMBASE

Available in fulltext from Annals of Indian Academy of Neurology at Directory of Open Access Journals

Severe neurological complications of chickenpox: Report of four cases
Author(s) Yilmaz C., Caksen H.
Citation: European Journal of General Medicine, October 2005, vol./is. 2/4(177-179), 1304-3889 (October/December 2005)
Publication Date: October 2005
Abstract: Neurological complications caused by chickenpox are estimated as approximately 0.01%-0.03%. Frequent complications related to central nerve system involvement are cerebellar ataxia and encephalitis, and rare complications are transverse myelitis, aseptic meningitis, Guillian-Barre syndrome, meningoencephalitis, ventriculitis, optic neuritis, post-hepatic neuralgia, herpes zoster ophalmicus, delayed controlateral hemiparesis, peripheral motor neuropathy, cerebral angitis, Reye syndrome and facial paralysis. In present study, additional four cases were presented who diagnosed as chickenpox within one year and developed neurological complications. Cerebellar ataxia
developed in two of our cases while cerebellar ataxia plus encephalitis was present in one case and peripheral type facial paralysis in the other.

**Source:** EMBASE
Available in fulltext from European Journal of General Medicine at **Free Access Content**

**Acute cerebellar ataxia associated with chickenpox.**
**Author(s):** Saab M, Wadhwa V
**Citation:** International Journal of Clinical Practice, November 2002, vol./is. 56/9(720), 1368-5031;1368-5031 (2002 Nov)
**Publication Date:** November 2002
**Abstract:** A case of a child with acute cerebellar ataxia associated with chickenpox virus infection is described. Acute cerebellar ataxia associated with chickenpox is a well-recognised complication and the pertinent features of this condition are discussed.

**Source:** Medline

**Management of varicella-zoster virus infections in children**
**Author(s):** Arvin A.M.
**Citation:** Advances in Experimental Medicine and Biology, 1999, vol./is. 458/(167-174), 0065-2598 (1999)
**Publication Date:** 1999
**Abstract:** The introduction of varicella vaccine for immunization of healthy children is expected to have a gradual impact on the incidence of VZV infections in the population but antiviral therapy remains an important intervention in clinical practice. The efficacy of aciclovir for treatment of primary and recurrent VZV infections in children has reduced the morbidity and mortality of these illnesses in immunocompromised children dramatically. Oral aciclovir is an effective and useful for the management of varicella in healthy children and adolescents.

**Source:** EMBASE

**Infections of the nervous system caused by Varicella-zoster virus: A review**
**Author(s):** Echevarria J.M., Casas I., Martinez-Martin P.
**Citation:** Intervirology, December 1997, vol./is. 40/2-3(72-84), 0300-5526 (December 1997)
**Publication Date:** December 1997
**Abstract:** Varicella-zoster virus (VZV) is a cause of neurologic disease among humans. Both primary infection and recurrence may lead to neurologic infection and disease. Neurologic syndromes associated with acute VZV infection are caused by abnormal immune responses, the most frequent manifestation being cerebellar ataxia. Those associated with recurrences are often due to the direct effect of viral replication in the nervous tissue. VZV reaches the nervous system either through the bloodstream or by direct spread from sensory ganglia where it remains latent. Postherpetic neuralgia, acute encephalitis, aseptic meningitis and myelitis are the most frequent diseases and have been recorded both in association with herpes testor and in the absence of a cutaneous rash. Early diagnosis may be established by detecting virus-specific DNA sequences in the cerebrospinal fluid (CSF) after amplification by the polymerase chain reaction and then confirmed by detection of intrathecally produced, specific IgG antibody. Virus isolation from CSF and antibody testing in serum are unsuitable for diagnosis. Early acyclovir therapy is recommended in immunocompromised patients and those with serious disease.

**Source:** EMBASE
Available in fulltext at Intervirology; Collection notes: On first login to a ProQuest journal you will need to select ‘Athens (OpenAthens Federation)’ from Select Region, and then ‘NHS England’ from Choose your Library.

**Acute cerebellar ataxia with abnormal MRI lesions after varicella vaccination.**
**Author(s):** Sunaga Y, Hikima A, Ostuka T, Morikawa A
**Citation:** Pediatric Neurology, November 1995, vol./is. 13/4(340-2), 0887-8994;0887-8994 (1995 Nov)
**Publication Date:** November 1995
**Abstract:** A 2-year-old boy, with the primary difficulties of nausea and vomiting, developed a staggering gait and dysarthria 10 days after varicella vaccination. Magnetic resonance imaging demonstrated multiple areas of high signal intensity in the white matter of the cerebellum, predominantly in the parieto-occipital white matter and both globus pallidi. He did not present any signs of myelitis or encephalitis and thus his cerebellar dysfunction was
diagnosed as acute cerebellar ataxia, which is, generally speaking, not an etiologic entity but a clinical syndrome. Magnetic resonance imaging may reveal a variety of abnormalities of the central nervous system in acute cerebellar ataxia.

**Source:** Medline

**Acute cerebellar ataxia associated with varicella.**

**Author(s):** Nussinovotch M, Soen G, Volovitz B, Versano I

**Citation:** Journal of Family Practice, May 1995, vol./is. 40/5(494-6), 0094-3509:0094-3509 (1995 May)

**Publication Date:** May 1995

**Source:** Medline

**Other neurological complications of herpes zoster and their management**

**Author(s):** Elliott K.J.

**Citation:** Annals of Neurology, 1994, vol./is. 35/SUPPL.(S57-S61), 0364-5134 (1994)

**Publication Date:** 1994

**Source:** EMBASE

**Course and outcome of acute cerebellar ataxia.**

**Author(s):** Connolly AM, Dodson WE, Prensky AL, Rust RS

**Citation:** Annals of Neurology, June 1994, vol./is. 35/6(673-9), 0364-5134;0364-5134 (1994 Jun)

**Publication Date:** June 1994

**Abstract:** We report a study of 73 consecutive children with acute cerebellar ataxia, representing all of the children evaluated at St. Louis Children's Hospital during a 23-year-period to whom this diagnosis could appropriately be assigned. Twenty-six percent had chickenpox, 52% had other illnesses that were presumed to be viral, and in 3% the ataxia was related to immunization. Nineteen percent had no definite prodrome. Sixty children were followed for 4 months or longer after onset of their ataxia (mean, 7.4 +/- 6.0 years). Ninety-one percent (55/60) of these, including all children with chickenpox, recovered completely from ataxia. Eighty-nine percent (39/44) of the children with non-varicella-related ataxia recovered completely from the ataxia, a much better rate of recovery than what was found in prior large studies. One fifth of the children followed for more than 4 months experienced transient behavioral or intellectual difficulties, but only 5 of the 60 children demonstrated sustained learning problems. This study represents the largest reported series of acute cerebellar ataxia and the most complete characterization of the clinical features and outcome of this illness.

**Source:** Medline

**Acyclovir for varicella in children: Do marginal benefits merit routine use?**

**Author(s):** Estrada J.

**Citation:** Drug Therapy, 1993, vol./is. 23/5(62-63), 0001-7094 (1993)

**Publication Date:** 1993

**Source:** EMBASE

**Ataxic gait. Complication of chicken pox.**

**Author(s):** Reilly K, Cohen-Sobel E, Caselli M

**Citation:** Journal of the American Podiatric Medical Association, March 1993, vol./is. 83/3(161-2), 8750-7315;1930-8264 (1993 Mar)

**Publication Date:** March 1993

**Source:** Medline

**Pre-eruptive varicella encephalitis and cerebellar ataxia.**

**Author(s):** Liu GT, Urion DK

**Citation:** Pediatric Neurology, January 1992, vol./is. 8/1(69-70), 0887-8994;0887-8994 (1992 Jan-Feb)

**Publication Date:** January 1992

**Abstract:** Varicella-related neurologic symptoms usually appear during or following the exanthem. Pre-eruptive neurologic manifestations are extremely rare. We report a 6-year-old boy who developed encephalitis, characterized by drowsiness and left-sided hyperactive deep tendon reflexes and cerebellar ataxia, both of which antedated the exanthem by 16 days. The diagnostic and public health implications are discussed.

**Source:** Medline
A controlled trial of acyclovir for chickenpox in normal children


Citation: New England Journal of Medicine, 1991, vol./is. 325/22(1539-1544), 0028-4793 (1991)

Publication Date: 1991

Abstract: Background. Chickenpox, the primary infection caused by the varicella-zoster virus, affects more than 3 million children a year in the United States. Although usually self-limited, chickenpox can cause prolonged discomfort and is associated with infrequent but serious complications. Methods. To evaluate the effectiveness of acyclovir for the treatment of chickenpox, we conducted a multicenter, double-blind, placebo-controlled study involving 815 healthy children 2 to 12 years old who contracted chickenpox. Treatment with acyclovir was begun within the first 24 hours of rash and was administered orally in a dose of 20 mg per kilogram of body weight four times daily for five days. Results. The children treated with acyclovir had fewer varicella lesions than those given placebo (mean number, 294 vs. 347; P<0.001), and a smaller proportion of them had more than 500 lesions (21 percent, compared with 38 percent with placebo; P<0.001). In over 95 percent of the recipients of acyclovir no new lesions formed after day 3, whereas new lesions were forming in 20 percent of the placebo recipients on day 6 or later. The recipients of acyclovir also had accelerated progression to the crusted and healed stages, less itching, and fewer residual lesions after 28 days. In the children treated with acyclovir the duration of fever and constitutional symptoms was limited to three to four days, whereas in 20 percent of the children given placebo illness lasted more than four days. There was no significant difference between groups in the distribution of 11 disease complications (10 bacterial skin infections and 1 case of transient cerebellar ataxia). Acyclovir was well tolerated, and there was no significant difference between groups in the titers of antibodies against varicella-zoster virus. Conclusions. Acyclovir is a safe treatment that reduces the duration and severity of chickenpox in normal children when therapy is initiated during the first 24 hours of rash. Whether treatment with acyclovir can reduce the rare, serious complications of chickenpox remains uncertain.

Source: EMBASE

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