


Relationship Between Anti-Virus Drugs And The Incidence Of Herpes Zoster Oticus: Literature Review

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Article Info	ABSTRACT
<p>Keywords: Herpes Zoster Oticus, Ramsay Hunt Syndrome, Anti-viral .</p>	<p>Herpes zoster oticus (HZO) is an infectious disease characterized by an erythematous vesicular eruption or rash on the pinna and external auditory canal along with severe otalgia. Antiviral drugs are very effective in reducing the severity and duration of HZO when treatment is started within 72 hours of the onset of the rash. Objective: This retrospective study summarizes the knowledge of the relationship of antiviral therapy to the incidence of Herpes Zoster Oticus . Method: This article is a literature study or literature review. The literature was obtained by collecting and reviewing Narrative Review, Case Report, Journal Method articles that were downloaded using electronic based accredited/indexed by Scopus and Sinta. Results: In this literature, 20 research articles were obtained discussing herpes zoster oticus and in them discussing treatment using antivirals. Among them consisted of 8 Case reports, 6 Narrative Reviews, and 6 Journal Methods. Conclusion: Antiviral administration in the occurrence of Herpes Zoster Oticus Antiviral administration in cases of Herpes Zoster Oticus is still effective until now. Administration of antivirals as early as possible within 72 hours is effective in reducing the severity of Herpes zoster oticus . Early treatment can stop the invasion and replication of the Varicella zoster virus further into the cranial nerves so that the prognosis for healing nerve function is very good. The combination of Antivirals and corticosteroids is the standard treatment for Herpes zoster oticus which helps full recovery of facial paralysis and inhibits hearing loss. However, from this literature review it is known that the delay in treatment of hearing function experienced will continue.</p>
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INTRODUCTION

Herpes zoster oticus (HZO) is disease infectious marked with eruption vesicular erythematous or rash on the pinna and canal hearing external together with severe otalgia . When accompanied by with paralysis nerve ipsilateral face , it called Syndrome ramsay hunt (RHS). Although HZO is rare found in practice clinical , HZO is more often found in patients with disturbance immunity immune . Very important for Doctors or ENT specialists to suspect , diagnose , and manage HZO among patient carry on age or children . (Swain and Paul, 2021)

This disease is a clinical expression of infection or reactivation. Varicella zoster virus (VZV) on the head, especially in the ear area. Decreased immunity can reactivate the Varicella-

zoster virus (VZV) which has been dormant for years and then cause Herpes zoster (HZ), so that in general Herpes zoster disease occurs in adults. The risk of contracting Herpes zoster is estimated at around 15-30%, but the risk is higher in adults and the elderly, *immunocompromised patients*, and patients with comorbidities, so this disease can be more severe and can cause more severe complications. (Devi *et al.*, 2022)

Patients with Herpes zoster oticus usually presents with earache, vesicular eruption in or around the auricle (sometimes also in the buccal mucosa or oropharynx) and various changes in cranial nerves VII, VIII (sometimes also V, IX, and X). Its incidence is estimated to be around 1% of all locations of zoster. (Patil, Goldust and Wollina, 2022)

Treatment Herpes zoster oticus standard is therapy corticosteroids and anti-viral doses high. Anti-viral drugs are very effective For reduce severity and duration of HZO when treatment started in 72 hours after the emergence rash. In the study this, in a way retrospective to summarize knowledge connection anti-viral therapy in Herpes simplex cases oticus.

METHOD

Research is a literature *study review*. Literature is obtained by collecting and reviewing downloaded articles using electronic based accredited / indexed Scopus and Sinta : DOAJ, Springerlink, Cochrane, Biomed, Portal Garuda, Google Scholar, Elsevier / Clinical Key, PubMed, and other database sources. The articles used as literature are article *Narrative review, case report, journal method, text book, providing*, etc., the contents of which are discuss about Shingles oticus / *Ramsay Hunt syndrome* and antiviral treatment of Herpes zoster oticus. Articles or literature that contain not related to Herpes zoster oticus / *Ramsay hunt syndrome* and anti-viral treatment of Herpes zoster oticus issued.

RESULTS AND DISCUSSION

Table 1. Findings clinical with treatment received in *case report*

Journal Case Report				
No.	Writer	Clinical Case	Treatment	Treatment Follow Up
1.	Avinash Kumar, Manjari Kishore, Garima Sinha, Simran Gangwani (2024)	78 year old male complaint main rash vesicular along leaf ear right and asymmetry face side right partial since 2 days. Accompanied by Sick ear side right, disturbance hearing and vertigo. Inspection physical : vesicles on top neck right C2 – C4 dermatome since 10 days. Rash to side right, soft, warm and pale moment	Valacyclovir, Pregabalin, Prednisolone and ear drops topical.	Channel hearing external and inspection normal tympanic membrane. Asymmetry face truly lost and patient No having vertigo episodes since 15 days

Journal Case Report

No.	Writer	Clinical Case	Treatment	Treatment Follow Up
		touched and not crossing the midline . History of the consul specialist skin & genitals start use valacyclovir and pregabalin 7 days after eruption vesicle neck , patient visit ENT-KL specialist with rash vesicular similar throughout leaf ear . Examination channel hearing external : vesicles in the anterior meatus, tympanic membrane still intact and normal. Paralysis face side right , eyeball closure meeting on the side right . Audiometry : disturbance bilateral mild oblique sensorineural hearing loss .		
2.	Made Ayu Dessy Dwitasari , Urged Made Cittarasmı Saraswati Seputra (2023)	year old woman eruption vesicular on the side left face and ears left 2 days preceded with painful burnt on the cheeks and ears left about 4 days previously . Earache adjacent left , tinnitus , and decreased hearing . Complaints accompanied by vertigo, nausea , and vomiting . Examination physical , rash vesicular on the left concha and leaflet edema ear left found . There are several vesicles , bullae , and lesions excoriation with hardening skin on the side left face . Examination neurological paralysis face left partial decline left	<ul style="list-style-type: none"> • acyclovir 4x800 mg • Acyclovir topical 3x1 • Betahistine 2x12 mg • Flunarizine 1x5 mg • Paracetamol 3x650 mg • Mecobalamin 2x500 mg • Inj. Diphenhydramine 3x4mg. 	Paralysis face patient improved , vertigo and tinnitus (-).

Journal Case Report

No.	Writer	Clinical Case	Treatment	Treatment Follow Up
		nasolabial fold , fold forehead on the side left , smile asymmetrical deviation to side right and drooping corner mouth left moment Rest .		
3.	Roberto Teggi , Anna Del Poggio , Iacopo Cangiano , Alessandro Nobile , Omar Gatti , Mario Bussi . (2023)	66 year old woman in pain increase gradual in the ear left and sick throat 5 days last . Several ENT-KL examinations vesicles and scabs seen on the leaves ear left and channel ear external ; In orolaryngoscopy column tonsils left anterior and posterior, presence of a number of lesi erosive coalescent seen expand to all over pharyngeal column and epiglottis to the ipsilateral piriform sinus. Test blood improvement marker inflammation and viral DNA research for VZV was positive (2,500,000 copies /mL). Three day treated at home sick , start feel nausea , upset hearing and vertigo. Vestibular evaluation showed nystagmus spontaneous beating to direction side right part inhibited by fixation and increased moment lying on the side left . Test audiometry : disturbance hearing heavy on the side left , especially at frequencies high , and disturbance mild sensorineural hearing loss on the side right . Patient	<ul style="list-style-type: none"> • Acyclovir • Steroid 	Recovery partial from second reflex vestibulo-oculomotor , although more vestibular function bad recorded on the side right . In addition , the recovery disturbance almost deaf hearing complete next door left shown . Inspection audiometry similar with test previously conducted elsewhere that demonstrated presbycusis .

Journal Case Report

No.	Writer	Clinical Case	Treatment	Treatment Follow Up
		<p>treated with steroids and acyclovir and released from House Sick after 12 days with repair clinical and laboratory . Ten day after go home , patient come difficulty walking , ataxia , and dizziness severe . Examination physical : nystagmus beating left and test impulse video head shows decline profit reflex vestibulo-oculomotor bilaterally and symmetrically ; Sixth channel half circle involved . Test results impulse video and audiometry head No show changes , whereas bilateral vestibular damage was found . Contrast MRI done on day 19 : the presence of change linear signal on the side left posterior lower pons enlarged to medulla at the site of the cochlear and vestibular nuclei.</p>		
4.	Ahmed Rouihi Nouredine Errami Bouchaib Hemmaoui Fouad Benariba (2022)	<p>25 year old male , type I diabetes on insulin presented with paralysis face peripheral the right growing for two days preceded by otalgia, hypoacusis and right otorrhea . Clinical results : on examination physical , there is swelling inflammation of the pinna, vesicles in the concha, otoscopic examination found channel ear external</p>	<ul style="list-style-type: none"> • Inj. Acyclovir 3x10mg/kg (10 days) • Corticosteroids 1x1mg/kg (10 days) • Analgesic level 2 • Rehabilitation paralysis face (10 sessions) 	<p>Evolution at 9 months marked with total recovery from paralysis face and enhancement disturbance real hearing from previously .</p>

Journal Case Report

No.	Writer	Clinical Case	Treatment	Treatment Follow Up
		inflammation and eardrum congestive without vestibular syndrome . Audiometry : disturbance hearing conductive right with stapedial reflex .		
5.	Jong Min Kim, Zeeihn Lee , Seungwoo Han , Donghwi Park . (2018)	67 year old male with one-sided otalgia right for 7 days accompanied by vertigo and decline hearing in the ear . History of type 2 diabetes mellitus (5 years). Examination physical : eruption vesicular and pustules on leaves ear right and channel hearing external . Serology antibody specific immunoglobulin G (IgG) for VZV was 8.12, a highly positive result , plus with antibody titer specific immunoglobulin M (IgM) for varicella zoster 0.14, result negative .	<ul style="list-style-type: none"> • Inj. Acyclovir 1500mg (25mg/kg/ day) • Inj. Dexamethasone disodium phosphate 5mg/ day (9 days) • Oral prednisolone 15mg (0.25mg/kg/ day) (Day 10 (5 days))). 	After 16 days from the emergence symptoms , he start complain about symptom addition difficulty swallow food , sound hoarseness , phlegm , dyspnea light , and weakness muscle expression face side right .
6.	Jamir Pitton Rissardo , Ana Leticia Fornari Caprara . (2018)	16 year old male eruption vesicular on forehead left . Medical history 4 days then at the doctor general with Sick ear left and swollen . He was diagnosed with otitis media and started use amoxicillin / clavulanate . The next day , the pain ear getting worse and starting to weakness face left . One day before enter Sick head , fatigue , appetite Eat decreased , fever , and eruption vesicular new on forehead left , vision ran away 1 day ago . Examination physical :	<ul style="list-style-type: none"> • Inj. Acyclovir 2400mg/ day • cephalixin 1000 mg/ day • Carbamazepine 400 mg 	Skin lesions stable No own symptom new . Time three months , residual lesions disappeared .

Journal Case Report

No.	Writer	Clinical Case	Treatment	Treatment Follow Up
		vesicles in distribution left trigeminal dermatome V1 and canal hearing external , related with prominent ipsilateral periorbital edema , paralysis muscle face up and down , hyperacusis, and tinnitus. MRI of the brain : increased contrast nerve face left T1 weighted in segment labyrinth . (PCR) swab (+) VZV.		
7.	Jee Min Choi , Jung Eun Shin , Chang-Hee Kim . (2012)	27 year old male , toothache in left ear 7 days ago , rotational dizziness and hearing loss 5 days ago. Nausea , tinnitus in the left ear and feeling of fullness . Examination Physical : left ear canal and ear canal were found to be red, and some bullous lesions . The speed of maximum brachial nystagmus 9°/sec. Audiometry pure tone and bithermal caloric test : sensorineural hearing loss high tone on the left side (a). Caloric test : 38% canal paresis on the left side (b). Hearing disorders slow phase velocity . Serology VZV (IgG) and IgM (+) .	<ul style="list-style-type: none"> • Acyclovir 3x250mg (5 Days) • Methylprednisolone : – 1x 0.8 mg / K g (4 Days) – 1x0.13 mg/Kg (10 Days) • Aluminum sulfate 1x1 • Antibiotics Ointment 	Dizziness and Nausea (-), Hearing No get better . Test hearing No There is difference results with previously after treatment .
8.	Leyla Kansu , Ismail Yilmaz . (2012)	12 year old boy painful increase gradual in the ear right and weakness face side right 2 days then . ENT-KL examination : the only one findings paralysis face peripheral acute on the side right . House-	<ul style="list-style-type: none"> • Acyclovir 90 mg/kg (7 days) • Corticosteroids (21 days) dose lowered in a way gradually) 	4th month of paralysis face decrease become HouseBrackmann grade IV, no existence symptoms and findings neurological .

Journal Case Report				
No.	Writer	Clinical Case	Treatment	Treatment Follow Up
		Brackmann grade V. Patient checked and suspected suffering from Bell's palsy. Therapy corticosteroids started with dose 1 mg / kg / day . Five days then , herpes vesicles appeared on the auricular concha 2 days later. previously . Inspection physical : dry herpes vesicles seen on the auricle.		

Table 2. Treatment of Herpes Zoster Oticus from *Narrative Review*

Journal Narrative Review			
No.	Writer	Year	Treatment Review
1.	Yuktam Goswami, Sagar S. Gaurkar .	2023	Several studies have found that oral antivirals and steroids effectively reduce late complications . Treatment is continued for up to a week or 10 days. However, since it has been reported in some cases that delayed facial nerve axonal degeneration takes up to three weeks, antiviral therapy is preferred to be continued until the specified time.
2.	Anant Patil, Mohamad Goldust , Uwe Wollina .	2022	Therapy HZ standard is acyclovir (ACV) and the prodrug valacyclovir or brivudine . Oral valacyclovir offers profit from improvement three up to five times in bioavailability acyclovir . A rare adverse event of ACV therapy and other antiviral medications is renal toxicity. In patients with renal impairment, dose reduction may be necessary. Only brivudine has no renal toxicity .
3.	Nurul Millennium University	2022	Therapy for HZO can generally be given antivirals, namely acyclovir 5x800 mg , famciclovir 3x500 mg , or valacyclovir 3x1000 mg for 7-21 days. Valacyclovir and famciclovir have been shown to be more effective than acyclovir in reducing the risk of pain symptoms felt. In addition, in HZO patients with facial nerve paresis can be given corticosteroids . Administration of corticosteroid drugs Systemically administered to relieve acute pain, vertigo , and postherpetic neuralgia .
4.	Santosh Kumar Swain, Roshna Rose Paul	2021	Antiviral drugs are very effective For reduce severity and duration of HZO when treatment started in 72 hours after the emergence rash . Administration beginning with steroids and antiviral drugs in 3 days time after the emergence symptom clinical own 75%

Journal Narrative Review				
No.	Writer	Year	Treatment Review	
			level for recovery full disease , while 30% if treatment combination started after 1 week since the emergence symptom	
5.	Reid A. Waldman , Corey W. Waldman , Steven D. Waldman .	2015	Famciclovir , valacyclovir , and acyclovir has proven shorten duration virus shedding as well as shorten journey manifestation skin I from VZV infection use beginning This antivirus agent can also help prevent development of postherpetic neuralgia. Medications this is also considered help weaken severity and duration disease in patients with disturbance immunity severe body . This antiviral agent can used simultaneously with modality treatment administration of steroids, either orally or injected in combination with anesthesia local when do stellate ganglion block Possible No only reduce symptom acute related with Ramsay Hunt syndrome , but reduce incident paralysis face persistent by 50%.	
6.	Monogr Virol . Basel , Karger .	2006	Systemic antiviral therapy must quick started after diagnosis of zoster oticus enforced . Indications giving Corticosteroids new given when There is involvement nerve Cranial VII or VIII. No delay the emergence therapy combination (at least still in range of 72 hours), because the prognosis worsens in a way real	

Table 3. Research Anti-viral Treatment for Herpes Zoster Oticus

Journal Method					
No.	Writer	Title	Research Design	Results	
1.	Hwa Sung Rim, Seok Hwan Chung , Ho Joong Kim, Seung Geun Yeo , Sang Hoon Kim . (2023)	Herpes Zoster Oticus with Concurrent Hearing Loss : A Study on Clinical Characteristics and Prognosis	Retrospective analysis		Recovery rate more hearing low on HZO with HL group if compared to with population general treated SSNHL patients with acyclovir combination of steroid doses tall .
2.	Nechama Uri, Elhanan Greenberg , Ruth Kitzes - Cohen, Ilana Doeck . (2003)	Acyclovir in the Treatment of Ramsay Hunt Syndrome	Retrospective study		Treatment RHS patients with hydrocortisone intravenous and acyclovir become established fact in a number of year Lastly . In our study , the treatment This given to 31 patients with recovery overall 82.6% without effect side .
3.	Minoru Kinishi , Mutsuo Amatsu , Mitsuhiro Mohri , Miki Saito , Toshifumi	Acyclovir Improvements Recovery Rate of Facial Nerve Palsy i n	Cross sectional study	-	Function more nerves good in treated patients with antiviral-corticosteroid combination than corticosteroids just .

Journal Method				
No.	Writer	Title	Research Design	Results
	Hasegawa , Shingo Hasegawa (2001)	Ramsay Hunt Syndrome	Hunt	
4.	Jenq - Yuh Ko , T .- S . Sheen , M . - M . Hsu . (2000)	Herpes Zoster Oticus Treated with Acyclovir and Prednisolone : Clinical Manifestation and Analysis o f Prognostic Factors	Retrospective study	Of the 28 patients whose treatment started in 3 days time since the emergence paralysis face , recovery from paralysis completed on 21 (75%). As comparison , of the 23 patients whose treatment started more from 7 days after onset, recovery from paralysis face finished only in 7 (30 %). Significant difference in recovery nerve face found between groups this . Giving beginning acyclovir-prednisone proven reduce degeneration nerve with testing stimulation nerves , Recovery hearing also tends to be more good for patients with treatment early .
5.	Shingo Murakami , Naohito Hato , Joji Horiuchi , Nobumitsu Honda, Kiyofumi Gyo , Naoaki Yanagihar . (1997)	Treatment of Ramsay Hunt Syndrome with Acyclovir- Prednisone : Significance of Early Diagnosis and Treatment	Retrospective study	Patients who receive maintenance more beginning (in time three day) has opportunity more total recovery good (75%) compared to those who receive 4-7 days treatment then (48%) and (30%).
6.	Nechama Uri, Walter Meyer, Elhanan Greenberg , Ruth Kitzes - Cohen . (1992)	Herpes Zoster Oticus : Treatment with Acyclovir	Retrospective study	Experience beginning show that acyclovir effective and relative safe in treating herpes zoster oticus .

From the findings cases obtained from a number of journal , that anti-viral treatment of herpes zoster oticus effective given range 72 hours time . Therapy the basis of herpes zoster is anti-viral administration . (Patil, Goldust and Wollina, 2022) Therapy HZ standard is acyclovir (ACV) and the prodrug valacyclovir or brivudine . Oral valacyclovir offers profit from

improvement three up to five times in bioavailability acyclovir . A rare adverse event of ACV therapy and other anti - viral medications is kidney toxicity. According to presentation clinical case (Kumar *et al.* , 2024) , history symptom clinical symptoms that appear 2 days before patient come treatment , after accept treatment No obtained experience disturbance hearing , as well as symptom paralysis face disappeared . This is in accordance with symptom clinical case (Dwitasari and Seputra, 2023) , (Pitton Rissardo and Fornari Caprara, 2018) and (Kansu and Yilmaz, 2012) , where obtained after treatment patient No The same very experience disturbance hearing that occurs . In addition , the third case the treatment done with combination corticosteroids with time giving the same treatment with anti-viral. This is yields a very good prognosis seen from symptoms experienced patient back to normal where facial paralysis , disorders hearing as well as symptom other disappeared (Table. 1). In line with study (Ko, Sheen and Hsu, 2000) and (Murakami *et al.* , 1997) the treatment started in 3 days time since the emergence paralysis face , recovery from paralysis completed at 75%. As comparison , from patients whose treatment started more from 7 days after onset, recovery from paralysis face finished only within 30 % . Significant difference in recovery nerve face found between groups this . Giving beginning acyclovir-prednisone proven reduce degeneration nerve with testing stimulation nerves , Recovery hearing also tends to be more good for patients with treatment early (Table. 3)

Whereas presentation of 4 cases other obtained that after accept treatment symptom facial paralysis as well as other disappeared , but disturbance hearing experienced nature settled . This is because of delay treatment experienced by the patient . Where the treatment received by patients on average > 72 hours, can be seen in Table 1. (Choi, Shin and Kim, 2012) , (Kim *et al.* , 2018) , (Rouihi *et al.* , 2022) , (Teggi *et al.* , 2023) .

In Table 2. Review articles for each year mention that systemic anti-viral therapy must quick started after diagnosis of Herpes zoster oticus enforced . (Monogr, Basel and Karger, 2006) (Swain and Paul, 2021) Anti-viral drugs are very effective For reduce severity and duration of HZO when treatment started in 72 hours after the emergence rash . (Waldman *et al.* , 2015) Famciclovir , valacyclovir , and acyclovir has proven shorten duration virus shedding as well as shorten journey manifestation skin I from VZV infection . Use beginning This anti-virus agent can also help prevent development *post* - herpetic neuralgia. This anti-viral agent can used simultaneously with modality treatment administration of steroids, either orally or injected with combination anesthesia local when do ganglion block possible No only reduce symptom acute related with Syndrome ramsay hunt, but reduce incident paralysis face persistent by 50%. Administration of corticosteroid drugs Systemically administered to relieve acute pain, vertigo , and *post* - herpetic neuralgia .

This matter in line with study (Rim *et al.* , 2023) level recovery more hearing low in Herpes zoster oticus with Hearing Loss group if compared to with population general Sudden Sensorineural Hearing Loss (SSNHL) patients treated with acyclovir combination of steroid doses high . In addition , based on study (Uri *et al.* , 2003) and (Kinishi *et al.* , 2001) treated patients with combination of anti-viral and corticosteroids own healing function more nerves Good .

Giving treatment combination of anti-viral and corticosteroids can given duration administration > 5 days . Similar things with (Goswami and Gaurkar, 2023) and Various studies have found that oral anti - virals and steroids effectively reduce late complications . Treatment is continued for up to a week or 10 days. However, since it has been reported in some cases that delayed facial nerve axonal degeneration takes up to three weeks, it is preferable to continue anti - viral therapy for the specified time.

CONCLUSION

Treatment with anti-virus in handle Herpes zoster oticus incident effective used . Administration of anti-virus as soon as possible Possible in range effective 72 hours For reduce severity of Herpes zoster oticus . Treatment in period time the can stop invasion Varicella zoster virus more carry on to nerve cranial so that the prognosis for healing function nerves are very good . A fast acting combination of anti-viral and corticosteroids become standard in Herpes zoster oticus treatment proven capable help recovery full of paralysis face patients and inhibit disturbance hearing . However from this literature review research can seen that delay Treatment for Herpes zoster oticus can return paralysis face , but function hearing experienced will settled . It is expected in the future the diagnosis can be enforced with fast so that Herpes zoster oticus treatment can more developed so that function hearing that occurs can resolved.

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