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Herpes Zoster and the Zoster Eye Disease Study (ZEDS)

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Educational Objectives

1. **To describe complications of herpes zoster.**

2. **To discuss study of suppressive valacyclovir to reduce complications of herpes zoster ophthalmicus**

3. **To discuss current recommendations for vaccination against zoster and challenge of underusage**

I have no financial disclosures

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Herpes Zoster (HZ) / Shingles

Common disease

- **>1,000,000** new cases/year in the United States
  - 8 percent Herpes Zoster Ophthalmicus (HZO)
- >95 percent of adults age 40+ in U.S. have had varicella and are at risk for HZ
- 1 in 3 in U.S. will have zoster
  - 1 in 2 age 85+

More common (~2x), severe in immunocompromised persons

- > 90 percent of people with HZ are *not* immunocompromised

Misconception #1

- **Healthy people are not at risk for zoster and its potentially disabling sequelae—we are!**

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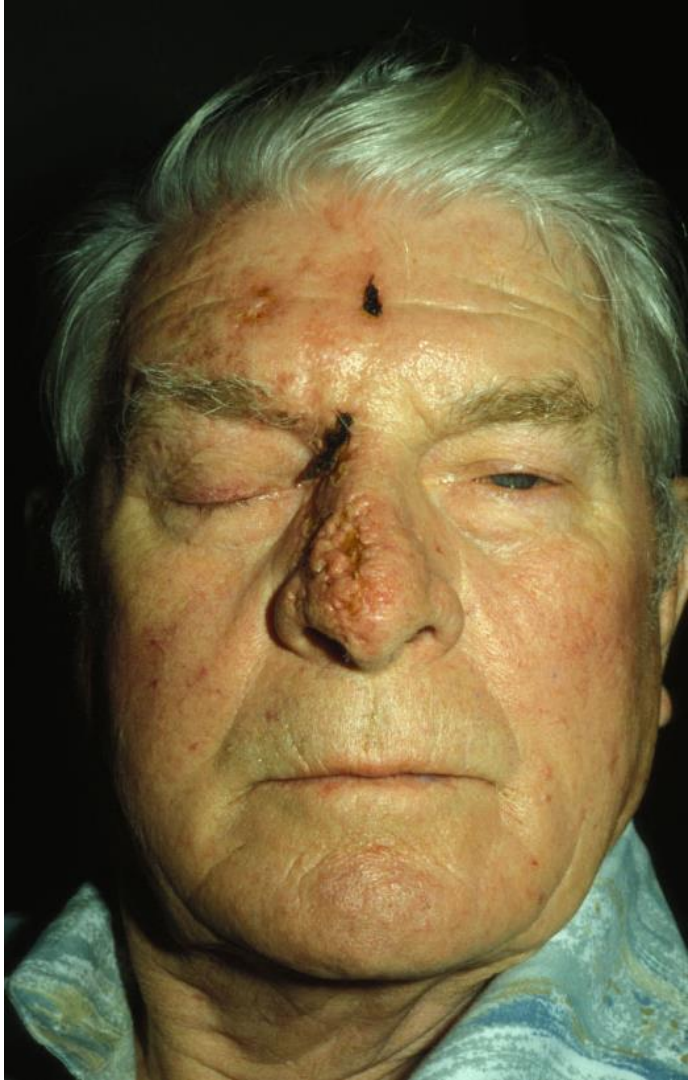


Incidence HZO and HZ 1994–2018

Kong CL. Ophthalmology 2020;127:324. Thompson RR.
Clin Infect Dis 2020 Aug 23. Harpaz JID 2018:218 (Suppl 2) S57

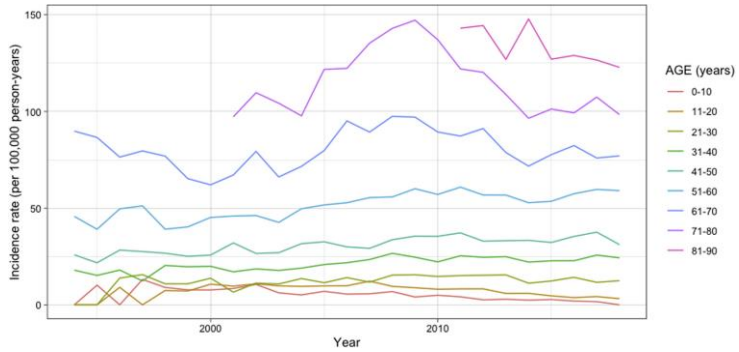
HZO

- **Increased age 31–60 years** old since 2007
- Men 0.74 rate women
- Blacks, Hispanics 0.75, 0.64 compared to whites

HZ

- No acceleration of increase after varicella vaccine
- Median age 56, 60 percent women
  - 25 percent age 43–56 years old
- **Decrease <21, >60** since 2007

Need to vaccinate starting age 50!



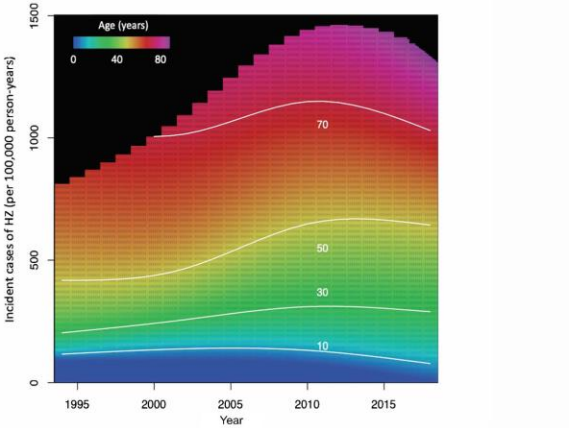


Figure 1. Incidence rate of herpes zoster by age, 1994 to 2018

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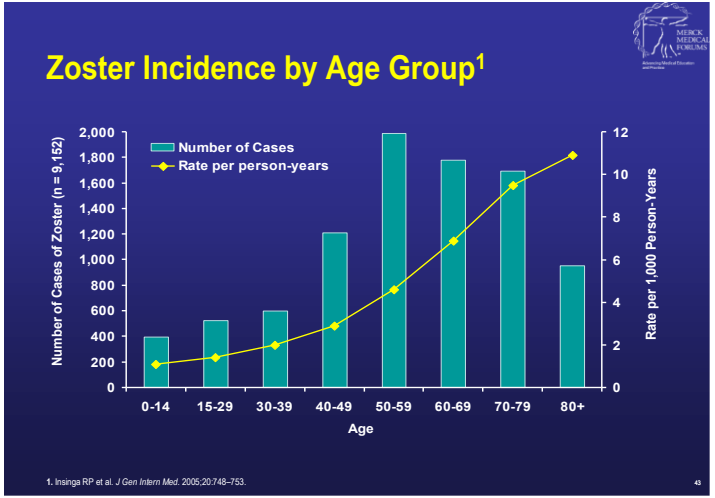
Age at Onset of Zoster

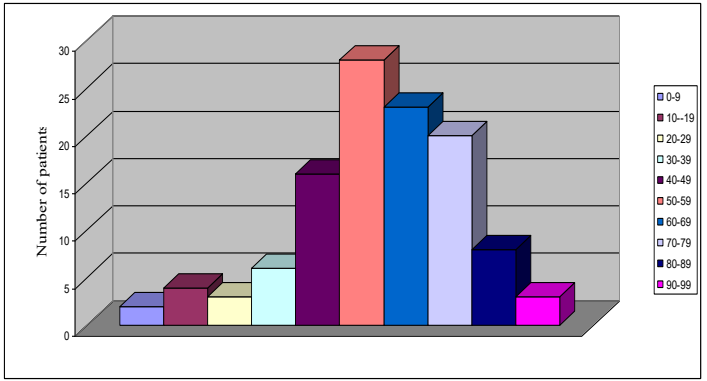
Rate goes up with age, but *number* of cases highest in 50s

- Yawn Neurology 2013; 81:928 (Figure 1)
- Insinga J Gen Intern Med 2005;20:748-53
- Ghaznawi Ophthalmology 2011;118:2242

Misconception #2

- **HZ is only a disease of the elderly—it affects a large number of people in their prime too!**





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Complications of HZ: Postherpetic Neuralgia (PHN)

- Defined as pain/itch beyond 3 months after onset of zoster
- Most common complication of zoster
  - Occurs in ~30 percent of HZO, mostly age 65+
    - Borkar Ophthalmology 2103; 120:451-6
- Systematic reviews of risk factors for PHN
  - **Age**, severity of prodomal and acute **pain, rash, HZO**
    - Forbes Pain. 2016; 157:30-54, Kawai Int J Infect Dis. *2015*; 34: 126-31
- Zoster risk factor for development of major depression
  - Chen, M. H. *Psychosom Med*, 2014; 76:285-91
- Zoster is most common cause of suicide due to pain in people age 70 years and older
  - Hess, TM. Minn Med. 1990; 73:37-40

Anecdote

"My mother worked full time to age 67. . . . She then got very ill with shingles. . . . She was in severe pain. . . . You could not even touch her hair or face. . . . She was never the same. . . . The chronic pain caused her to sleep for most of the day. . . . The pain never really went totally away. . . . I received the vaccine about 2 years ago, and pray I never get the disease. Neither polio, meningitis, or rheumatoid arthritis stopped my very active mother, but the shingles destroyed her life."

KC 2017

Zoster Risk for Stroke, Cardiovascular Disease

Nagel JID 2018: 218 (Suppl2) S107; Warren-Gash S102

Zoster long-known risk factor for stroke

- 55 percent–2x including stroke within 1–3 months, decreasing over 6–12 months
  - Yawn Mayo Clin Proc 2016; 91:33
- 8x risk stroke 1 month age 18–49 years
  - Patterson Mayo Clin Proc 2019; 94:763
- Should HZ patients have prophylactic antiviral treatment for 1 year, especially if <50 years old??
  - Nagel Mayo Clin Proc 2019; 94:742-44
- 2–4x risk stroke after **HZO** vs. HZ

Giant cell arteritis may be VZV vasculopathy of temporal artery

- **Gilden**, White, Khmeleva. Neurology. ***2015***; 84:1948

Zoster risk for cardiovascular disease

- Breuer. Neurology 2014;82:1.
- Wu P-H. J Clin Med 2019; 22:547 (short-term)
- Curran SG J Am Heart Ass. 2022; 11: e027451 (long-term)

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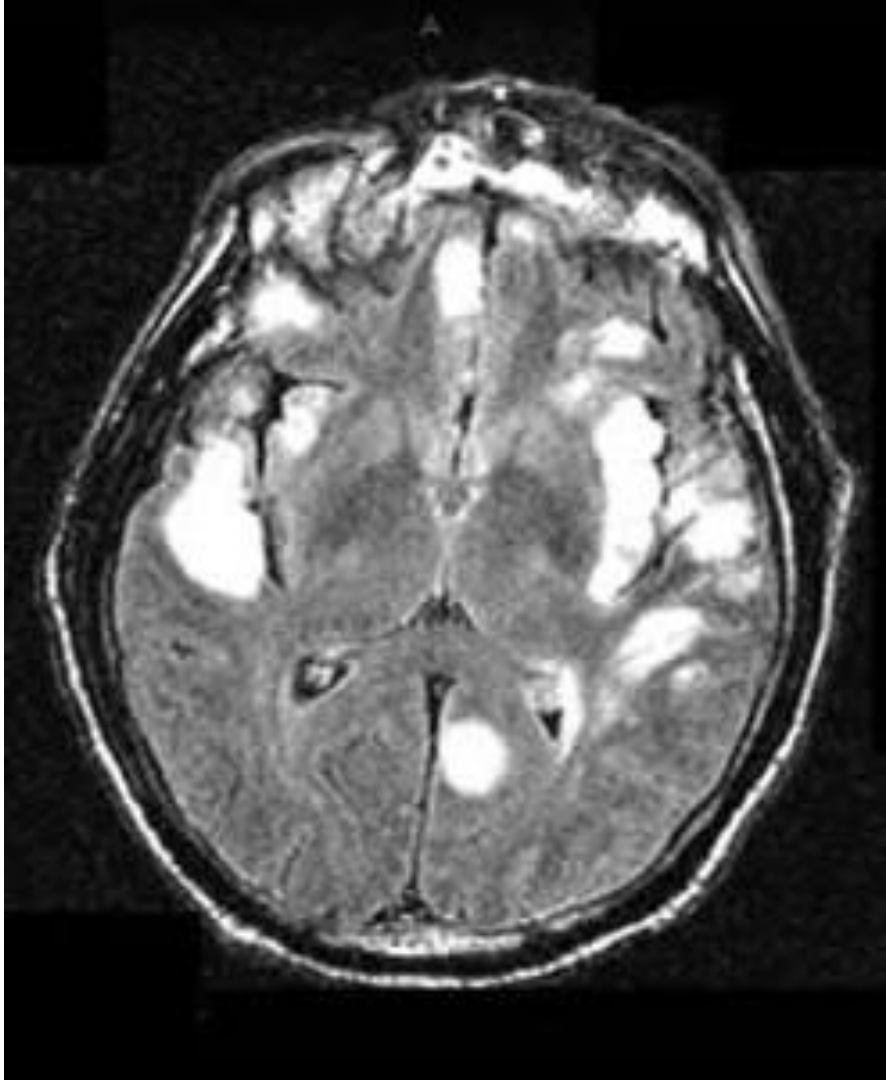


Zoster as Risk Factor for Dementia

The association of Herpes Simplex Virus (HSV) and VZV infection with dementia: a nationwide retrospective cohort study

- Korea 2006–2017
- Hazard Ratio (HR): HSV 1.38, VZV 1.41 (95 percent CI: 1.37-1.46), especially eye, CNS, complicated VZV, including risk of Alzheimers and vascular dementia
  - Shin E Alzheimers Res Ther. 2024; 16:57

HZ virus infection and risk of developing dementia: a systematic review and meta-analysis

- Prevalence of dementia in HZ vs. HZ-free group
- No significant difference overall
- HZO had increased incidence of dementia
  - RR (relative risk): 6.25, 95 percent CI: 1.30-30.19, p = 0.02
    - Elhalag RH Medicine. 2023; 102:e34503

Possible New Treatment for HZO

- The Zoster Eye Disease Study (ZEDS), funded by NEI in 2016, to conduct a multicenter, randomized, placebo-controlled clinical trial (RCT) to determine whether prolonged, suppressive valacyclovir treatment reduces complications of HZO, including eye disease and/or postherpetic neuralgia
- Purpose to determine high-quality, evidence-based, new standard of care regarding suppressive antiviral treatment for HZO

ZEDS Study Structure

- 95 Participating Clinical Centers (PCCs) in U.S., Canada, and New Zealand
- Coordinating Center (CC) at NYU Langone Health
- Study Chair: Elisabeth Cohen, Co-Chair Bennie Jeng, U Penn
  - Multiple PIs: Judith Hochman, Andrea Troxel, CC NYUSoM, NYULH
  - Executive Committee: James Chodosh, Kathryn Colby, Anat Galor, Todd Margolis, Alice Matoba, Stephen McLeod, Shahzad Mian, David Warner
  - Medical monitor: Michael Perskin
  - Clinical Event Review Committee: Debbie Jacobs, Chair
  - DSMC of NEI, FDA IND

Background and Rationale of ZEDS

- Acute high-dose oral antiviral treatment is recommended for HZO, but there is no standard approach to antiviral treatment for ocular complications of HZO.

- Rationale of the ZEDS
  - First: Relatively recent knowledge of infectious pathogenesis of complications of HZ and HZO
  - Second: Significant benefit of suppressive antiviral treatment in reducing recurrent herpes simplex virus (HSV) eye disease in HEDS
    - New Eng J Med 1998; 339:300-6
  - HZO and HSV keratitis, caused by different herpes viruses, are analogous in many ways.

ZEDS Overview

- Double-masked, multi-center, randomized controlled trial (RCT)
- Immunocompetent adults ≥ 18 years of age
- History of typical unilateral rash
- Episode in medical record within the year prior to enrollment of keratitis or iritis

- Randomized 1:1 ratio to suppressive valacyclovir 1000 mg daily or placebo for one year of treatment and 18 months of follow-up, with study visits every 3 months
  - Randomized in 4 strata within center
    - Age of *onset* of HZO: < 60 years vs. ≥ 60 years
    - Time since onset at *enrollment*: < 6 months vs. ≥ 6 months
  - Rationale for strata included in statistical analysis plan
    - Expected ~50 percent < 60, disease manifestations vary by age
    - Expected greater benefit in recent-onset disease

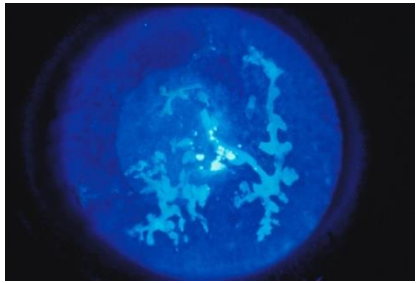
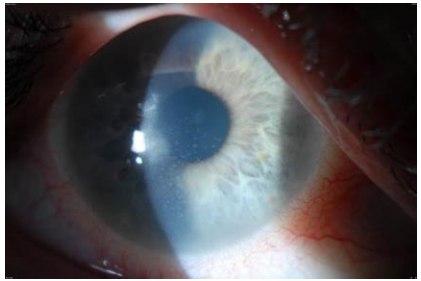
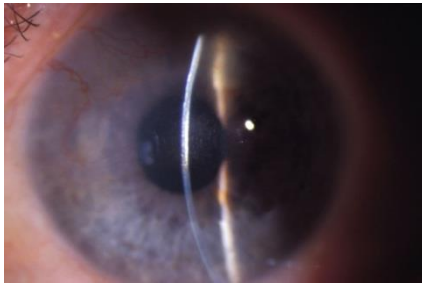
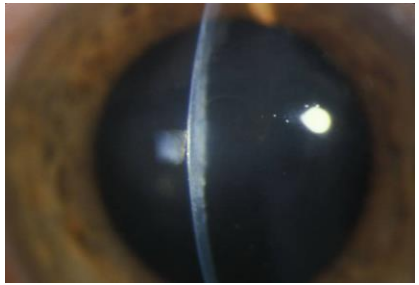
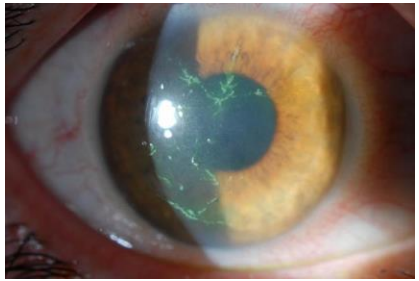
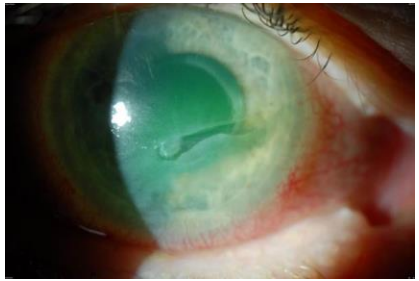
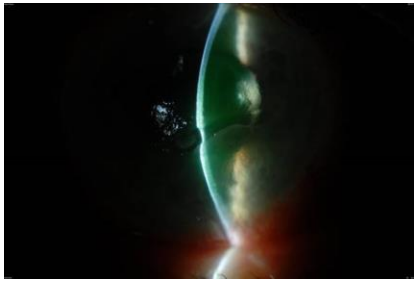
Primary Objective and Endpoint

To evaluate whether or not 12 months of suppressive valacyclovir treatment, compared with placebo, delays time to first occurrence by 12 months of new or worsening of specific disease manifestations of HZO.

- Dendriform epithelial keratitis (DEK)
- Stromal keratitis (SK)
- Endothelial keratitis (EK) (disciform keratitis)
- Iritis (IR)
- Stromal keratitis with ulceration (SKU)
  - SK, EK, and IR required substantial increases in treatment
  - Primary endpoints reviewed and adjudicated by masked Clinical Event Review Committee

Secondary objective: To evaluate whether there is persistent treatment benefit at 18 months and 6 months after cessation of treatment

Corneal Disease Endpoints

Second Aim: Postherpetic Neuralgia

To test the hypothesis that suppressive treatment for 12 months with oral valacyclovir 1000 mg daily reduces the incidence, severity, and duration of PHN compared to placebo at 12 and 18 months (secondary objectives) in patients with HZO

Top Enrolling PCCs by Number Enrolled

PCC #	PCC Name	PI	Green Light Letter Sent	Number Enrolled
039	University of Michigan	**Shahzad Mian, MD**	1/8/2018	19
088	Clinique Axe Visuel	**Mazen Choulakian**	8/29/2019	17
117	UAMS Jones Eye Institute	**Dave Warner, MD**	3/10/2020	16
007	Mayo Clinic - Rochester	**Keith Baratz, MD**	10/18/2017	16
014	Cornea Consultants of Nashville	**Mark Ewald, MD**	9/7/2017	16
060	Dartmouth Hitchcock Medical Center	**Donald Miller, MD**	12/28/2017	15
130	University of Auckland	**Jay Meyer, MD**	9/21/2020	14
079	Virginia Eye Institute	**Christopher Estopinal, MD**	8/21/2018	14
051	Pacific Eye Surgeons	**Mark Sherman, MD**	9/12/2017	13
053	Johns Hopkins Wilmer Eye Institute	**Divya Srikumaran, MD**	5/8/2018	12
063	Finger Lakes Ophthalmology	**Holly Hindman, MD**	11/21/2017	12
038	Baylor College of Medicine	**Alice Matoba, MD**	9/27/2017	12
067	Verdier Eye Center	**Ann Renucci, MD**	9/7/2017	12
044	NYU Langone Medical Center	**Christina Prescott, MD**	9/6/2017	12
090	CHUM	**Marie-Claude Robert, MD**	1/14/2020	11
072	Loma Linda University Eye Institute	**Frank Hwang, MD**	4/24/2018	11
086	UBC/Vancouver General Hospital	**Alfonso Iovenio, MD**	1/9/2020	11
010	OHSU - Casey Eye Institute	**Afshan Nanji, MD**	12/28/2017	10
042	Medstar Georgetown University Hospital	**Aruoriwo Oboh-Weilke, MD**	10/12/2017	10
066	UT Southwestern	**Jeremy Bartley, MD**	9/29/2017	10
045	Ophthalmic Partners	**Irving Raber, MD**	9/7/2017	10

Data Summary: Accrual by Strata

Strata	Number of Randomized Participants	Percent of Participants
All Strata	527	100
< 60y, Recent	**162**	**31**
< 60y, Chronic	124	24
≥ 60y, Recent	**138**	**26**
≥ 60y, Chronic	103	20

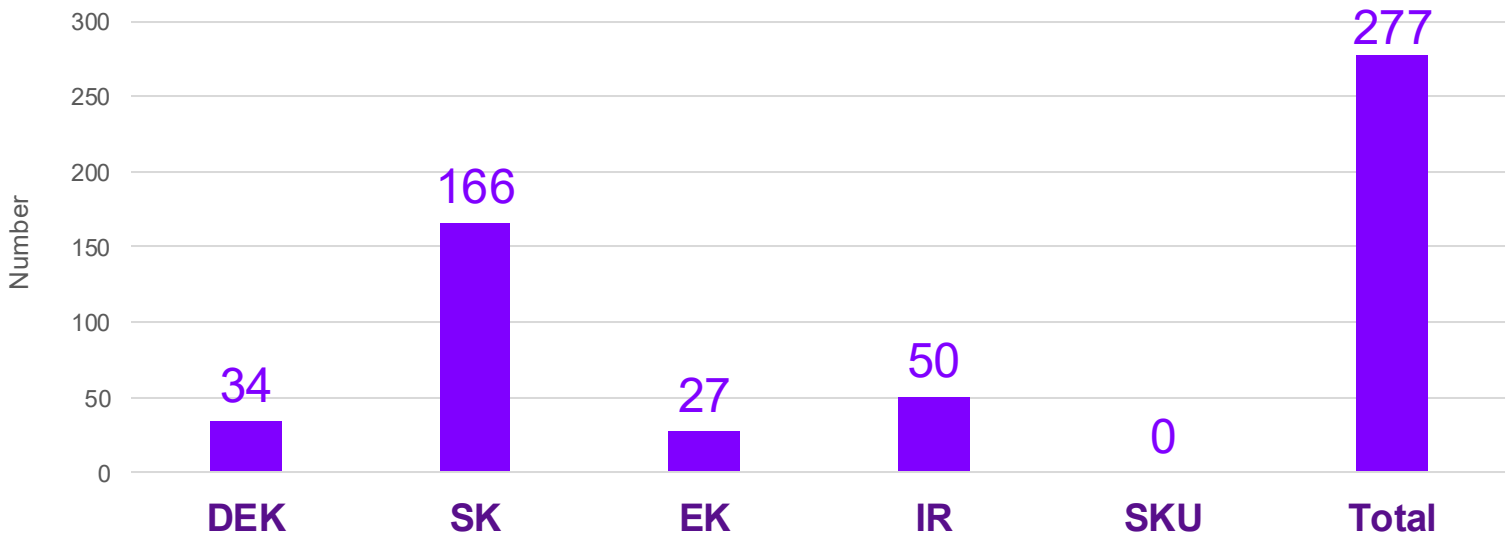
Baseline Characteristics at Enrollment

Prescott, Cohen, Hochman et al., *Cornea* 2024 Feb 27 online (2024; 00:1-8)

- 50 percent of randomized participants are female
- Both genders represented in each of the 4 strata
- 87 percent of participants are White
- 26 participants (5 percent) are Hispanic or Latino
- Median age at randomization: 60 (Q1–Q3: 50–68)
- 91 percent had received acute recommended antiviral treatment
- 79 percent of participants did not receive zoster vaccine prior to enrollment
- 8 percent of participants reported varicella vaccine prior to enrollment

Confirmed Endpoints

Dendriform Epithelial Keratitis (DEK), Stromal Keratitis (SK), Endothelial Keratitis (EK), or Iritis (IR)



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ZEDS Zoster Eye Disease Study

Results

Flow of Participants Through Study

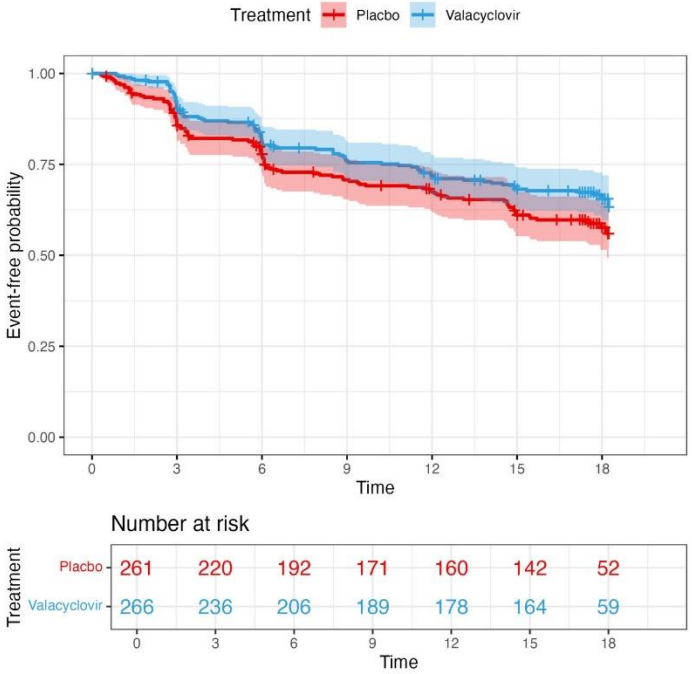
- Screened for eligibility 651
- Excluded 124
- Randomized **527**
  - Valacyclovir 266
  - Placebo 261
    - *All received assigned study med and included in intention to treat analysis*

Follow-up

- Withdrawn from study **67**
  - Valacyclovir 29
  - Placebo 38
- Stopped study med 79
  - Valacyclovir 35
  - Placebo 44
    - *No study medication-related serious adverse events*
- Completed study (527-67) **460**

Primary Endpoint Analysis: Kaplan Meier by Treatment Overall

- No significant treatment benefit in reducing new/worsening SK, IR, DEK, and EK at *primary endpoint* of 12 months of treatment by log-rank test after adjusting for strata (p = 0.09), but **significant benefit for *secondary endpoint* at 18 months (p = 0.03)**
- **12 months: HR: 0.77**, 95 percent CI: 0.56-1.05, p = 0.09
- **18 months: HR: 0.73**, 95 percent CI: 0.55-0.97, **p = 0.03**



Shading indicates 95 percent confidence intervals

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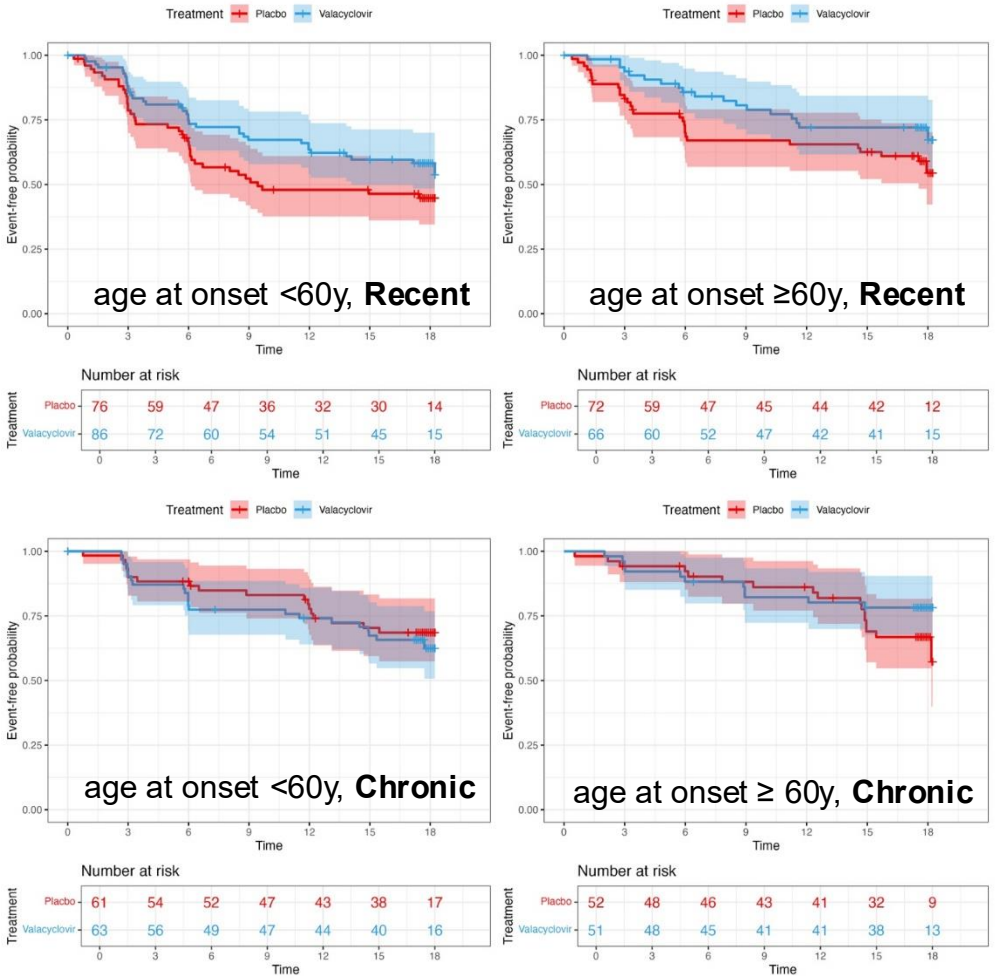
Primary Endpoint Analysis: Kaplan Meier Curves by Treatment Within Strata



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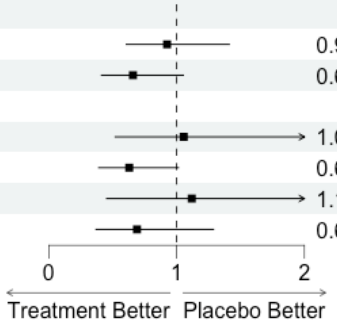
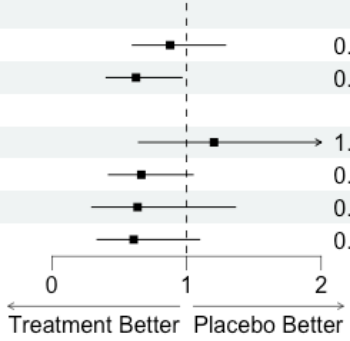
Subgroup Analyses at 12 (above) and 18 months (below)

Subgroup	Placebo (N = 261)	Valacyclovir (N = 266)	HR (adjusted 95% CI)
Sex			
Male	34%	33%	0.93 (0.61 to 1.41)
Female	32%	23%	0.66 (0.41 to 1.05)
Strata			
<60y, Chronic	25%	25%	1.06 (0.52 to 2.14)
<60y, Recent	50%	36%	0.63 (0.39 to 1.01)
>=60y, Chronic	17%	20%	1.12 (0.45 to 2.76)
>=60y, Recent	33%	26%	0.69 (0.37 to 1.29)



Subgroup	Placebo (N = 261)	Valacyclovir (N = 266)	HR (adjusted 95% CI)
Sex			
Male	42%	39%	0.88 (0.6 to 1.29)
Female	38%	26%	0.62 (0.4 to 0.97)
Strata			
<60y, Chronic	30%	35%	1.2 (0.64 to 2.25)
<60y, Recent	53%	41%	0.66 (0.42 to 1.05)
>=60y, Chronic	33%	22%	0.64 (0.3 to 1.36)
>=60y, Recent	40%	27%	0.61 (0.34 to 1.1)



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ZEDS
Zoster Eye Disease Study

Statistical Analysis of Benefit in Each of Four Strata

p values for the HRs, adjusted 95 percent confidence intervals (CIs)

Suggestion of benefit in pre-specified analysis

- At 12 months <60, Recent onset: **p = 0.06** [**HR: 0.63**, (95 percent CI 0.39-1.01)]
- At 18 months <60, Recent onset: **p = 0.08** [**HR: 0.66**, (95 percent CI 0.42-1.05)]
  - But Cochran Q tests indicated no significant heterogeneity of treatment effects across the four strata

Comments

- HR: 0.63 means 37 percent reduction
- p < 0.05 statistically significant
  - But does not measure importance of result or provide good evidence of measure regarding hypothesis, shift focus to clinical relevance—magnitude of result with confidence intervals
    - Nead KT JAMA Oncol. 2018 Dec; 4(12): 1778–1779

Valacyclovir Treatment Benefit for Recent Onset HZO (Enrolled within 6 months)

Analysis by combining recent onset strata (not pre-specified) showed significant reduction in endpoints in recent onset HZO

- 12 months **HR = 0.65**, adjusted 95 percent CI: 0.45-0.96, **p = 0.03**
- 18 months **HR = 0.64**, adjusted 95 percent CI 0.45-0.92, **p = 0.02**

Comments

- In Statistical Analysis Plan (SAP) hypothesized that treatment benefit greater in recent onset
- Consider clinically meaningful in guiding care

Subsequent Endpoints by Treatment Group

Note: Participants had at least one episode for eligibility, primary endpoint at least second episode, and subsequent endpoint at least third

	Total	Placebo	Valacyclovir		Total	Placebo	Valacyclovir
	(N=527)	(N=261)	(N=266)		(N=527)	(N=261)	(N=266)
Primary endpoint				Primary endpoint			
No	367 (70%)	175 (67%)	192 (72%)	No	336 (64%)	157 (60%)	180 (68%)
Yes	160 (30%)	86 (33%)	74 (28%)	Yes	190 (36%)	104 (40%)	86 (32%)
Number of subsequent endpoints				Number of subsequent endpoints			
0	122 (23%)	61 (23%)	61 (23%)	0	134 (25%)	70 (27%)	63 (24%)
1	26 (5%)	15 (6%)	11 (4%)	1	39 (7%)	21 (8%)	18 (7%)
2	4 (1%)	3 (1%)	1 (0%)	2	10 (2%)	6 (2%)	4 (2%)
3	6 (1%)	6 (2%)	0 (0%)	3	6 (1%)	6 (2%)	0 (0%)
4	1 (0%)	0 (0%)	1 (0%)	4	0 (0%)	0 (0%)	0 (0%)
5	1 (0%)	1 (0%)	0 (0%)	5	2 (0%)	1 (0%)	1 (0%)
By 12 months				By 18 months			

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Significant Valacyclovir Treatment Benefit in Reducing Subsequent Endpoints

Participants randomized to valacyclovir had a significantly lower HR of experiencing subsequent endpoints compared to those on placebo.

- At 12 months: HR: 0.69, adjusted 95 percent CI 0.51-0.94, **p = 0.02**
- At 18 months: HR: 0.71, adjusted 95 percent CI 0.54-0.94, **p = 0.02**

ZEDS Guidance for Evidence-Based Clinical Practice

- Evidence supports suppressive valacyclovir treatment 1000 mg daily for one year to reduce new or worsening keratitis or iritis in immunocompetent, non-pregnant adults with good renal function
  - Pre-specified analysis of primary endpoint did not show overall significant benefit at 12 months but did at 18 months (secondary endpoint)
- Evidence supports suppressive valacyclovir treatment to reduce multiple episodes of keratitis or iritis at 12 and 18 months

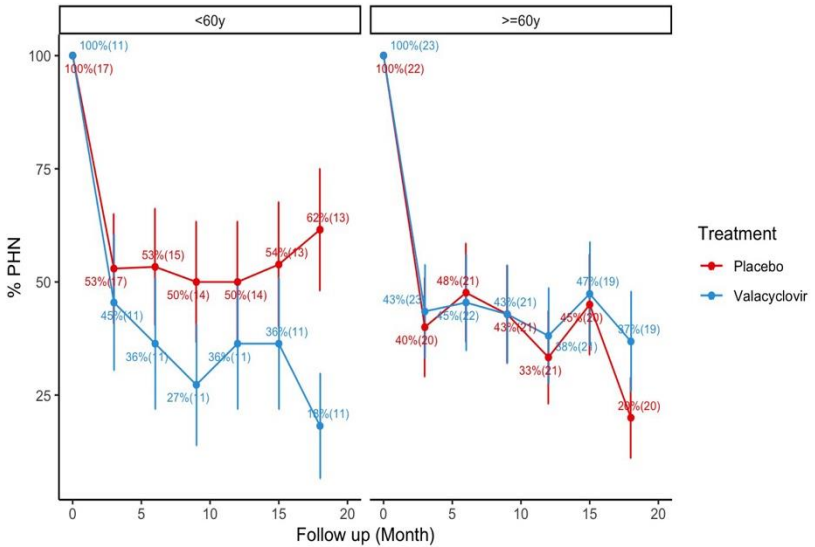
Second Aim: Postherpetic Neuralgia

- Zoster Brief Pain Inventory (ZBPI) score of worst pain in last 24 hours of 3/10 or more occurring 3 or more months after HZO onset was used to determine the prevalence, severity, and duration of PHN
- The effect of valacyclovir treatment on medication usage for pain was also analyzed
- At enrollment 73 (73/527, 14 percent) participants had PHN
  - Valacyclovir: 34 Placebo: 39

- PHN was significantly more common in participants with HZO onset age 60 or older (48/241, 20 percent, **p = 0.007**)
  - But PHN also occurred in younger participants (25/286, **9 percent**).

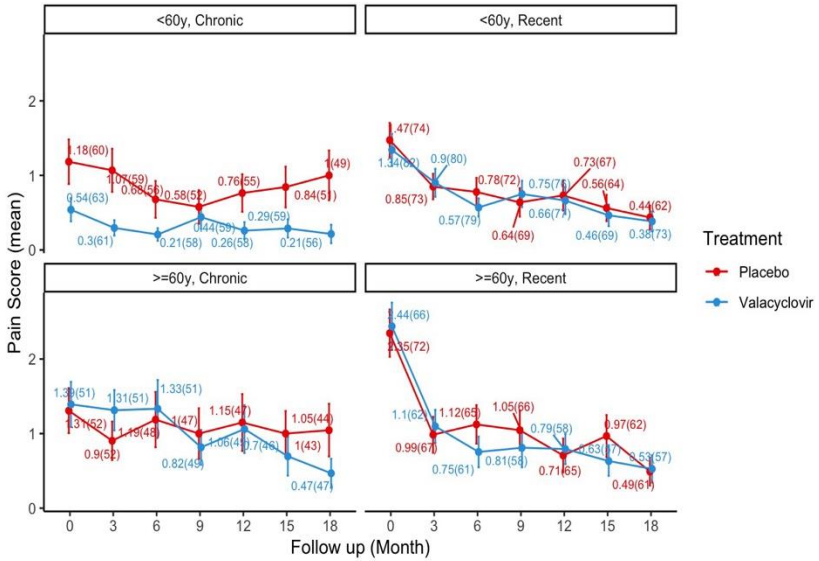
Participants with PHN at Enrollment

- Prevalence not reduced overall
- Participants **<60 years** at HZO onset on valacyclovir had a significantly **lower prevalence of PHN at 18 months (p = 0.05)**
  - 12 and 18 months in specific aim for PHN are both equal secondary objectives
  - Combined strata analysis by age ad hoc, not pre-specified



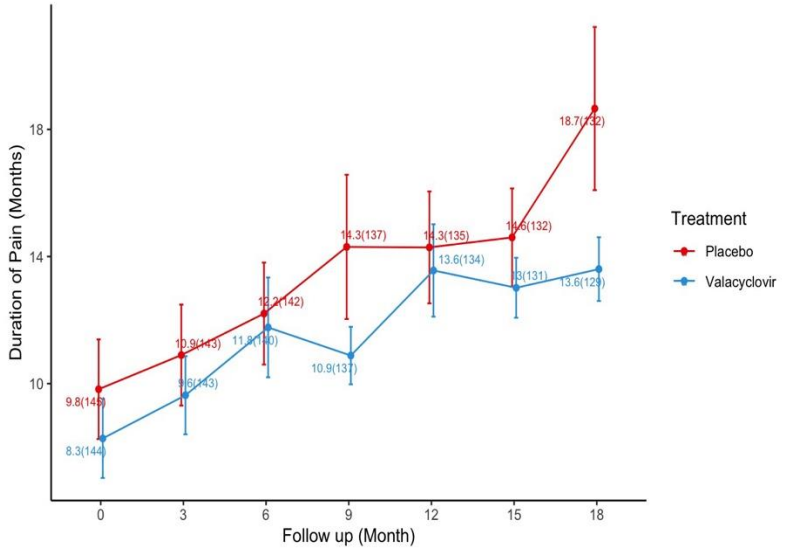
Pain Scores

- Participants in the **<60 year-onset chronic stratum** on valacyclovir had significantly lower pain scores **at 12 and 18 months (p = 0.045, p = 0.020)**
- Participants on valacyclovir in the ≥60 year chronic stratum had a suggestion of greater decrease in pain at 18 months (p = 0.07)



Pain Duration

Among all participants, there was a **significant decrease** in pain duration for those on valacyclovir compared to placebo at **18 months** [difference of -3.39 (CI -6.73, -0.04), **p = 0.05**]



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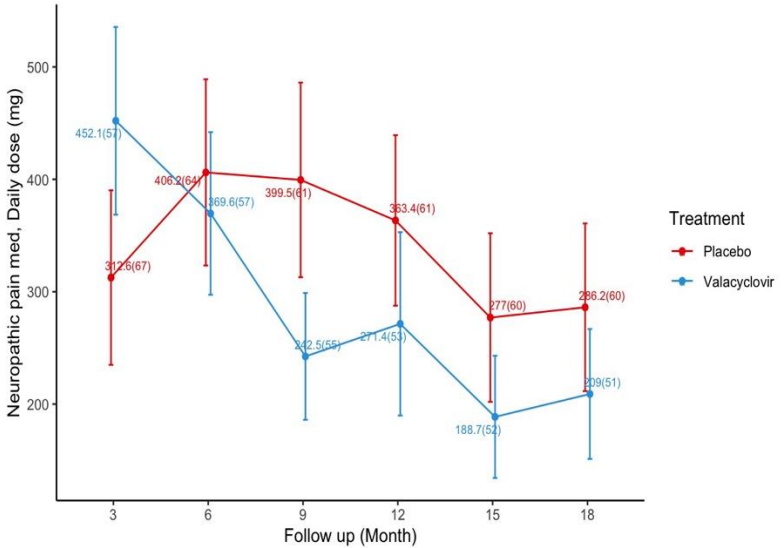
ZEDS Zoster Eye Disease Study

Change in Dose of Neuropathic Pain Medications

- There was a **statistically significant reduction** in the dose of neuropathic medications **at 12 and 18 months** (p = 0.006 and p = 0.012, respectively) for participants on valacyclovir

- This was a pre-specified analysis with significant benefit across strata at both times!



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ZEDS Zoster Eye Disease Study

ZEDS Guidance for Evidence-Based Treatment of PHN/Pain

Recommend 1 year of suppressive valacyclovir in HZO patients

- HZO Onset < 60 years, chronic stratum
  - –Significantly lower pain scores at 12 ($p = 0.05$), 18 months ($p = 0.02$)
- HZO Overall
  - –Significant decrease in pain duration at 18 months ($p = 0.05$)

Why is benefit greater at 18 months?

Speculation: takes injured nerves time to heal??

ZEDS Guidance for Evidence-Based Treatment of PHN

Recommend one year of suppressive valacyclovir to significantly reduce dose of neuropathic pain medications at 12 and 18 months ($p = 0.006$, $p = 0.012$)

Comments

- Valacyclovir safe and well tolerated compared to neuropathic pain medications
- Treatment benefits for pain due to zoster in other locations merit study

Gratitude

- 14-year journey from idea to results
- 6 years of planning and 3 grant applications to secure funding from NEI
  - Tremendous support from across NYULH
- 8-year study
  - Continued huge NYULH support
  - Enrollment at 82 centers in 3 countries; many thanks to PIs, Co-Is, and coordinators for their hard work, persistence, and dedication
  - Special appreciation for study participants who volunteered
  - Invaluable support from NEI and the National Shingles Foundation
- Achieved aims of developing high-quality evidence-based guidance for use of suppressive valacyclovir to improve outcomes in HZO and PHN/pain that will benefit many patients

Recombinant Zoster Vaccine (RZV. Shingrix)

Lal H et al. N Engl J Med 2015; 372:2087-96.
Cunningham N Engl J Med 2016; 375:1019-32

- Adjuvanted herpes zoster subunit vaccine (GlaxoSmithKline)
  - Recombinant VZV glycoprotein E antigen, novel AS01B adjuvant
- ZOE-50 RCT in immunocompetent adults age 50 years and older
  - ***2*** IM injections 2 months apart of vaccine or saline *placebo*
  - Results: ~97 percent efficacy *for all age groups*
  - Grade **3** severe acute symptoms interfering with activities in **17 percent**
- Vaccine efficacy pooled in 2 ZOE-70, ZOE-50 trials
- Results: efficacy: **~90 percent** in vaccine recipients age 70s and 80s
- Efficacy against HZ persists: 85 % year 4, **73% year 10,** CD4 T-cell stable >6x vs pre vax yr 5-10
  - Strezova et al Open Forum Infectious Dis. 2022; 9:ofac485
- FDA-approved Recombinant Zoster Vaccine (RZV) October 2017, age 50+
- CDC recommended January 26, 2018, MMWR for *immunocompetent* 50+

RZV in Immunocompromised: FDA Approval and CDC Recommendations

FDA approval July 2021

Adults age 18+ who are or will be at increased risk of HZ due to immunodeficiency or immunosuppression caused by known disease or treatment

CDC recommendations January 2022

– Anderson TC, Masters NB, Guo A et al. MMWR 2022; 71:80-84

- Recommends 2 RZV doses for immunodeficient or immunosuppressed age 19 years+
- 2 doses 2–6 months apart, but can be 1–2 months apart
- Timing: before immunosuppressed, or when immune response is best
- *Give if they've gotten the varicella vaccine*
- Can be on antivirals
- At same time/different site as other vaccinations, including COVID-19
- For persons with hx of HZ

Recent Publications on Possible Benefits of HZ Vaccination

- Association of HZ and flu vaccinations with risk of dementia: a population-based cohort study within the UK (ZVL 2013-2020 for age 70-80)
  - HZ vaccination lowers risk of dementia: HR 0.78 (95 percent CI 0.77-0.79) vs. flu HR 0.96
- Causal Evidence HZ Vaccination prevents proportion of dementia (pre-print)
  - Wales: study compared born 1 week before vs. 1 week after cut-off 80-year olds for ZVL in 2013
  - Decreased risk over 7 years by 3.5 percent, p = 0.019, 19.9 percent relative reduction in dementia
    - Lophatananon A BMC Public Health 2023; 23:1903. Eyting M medRxiv 2023 May 25

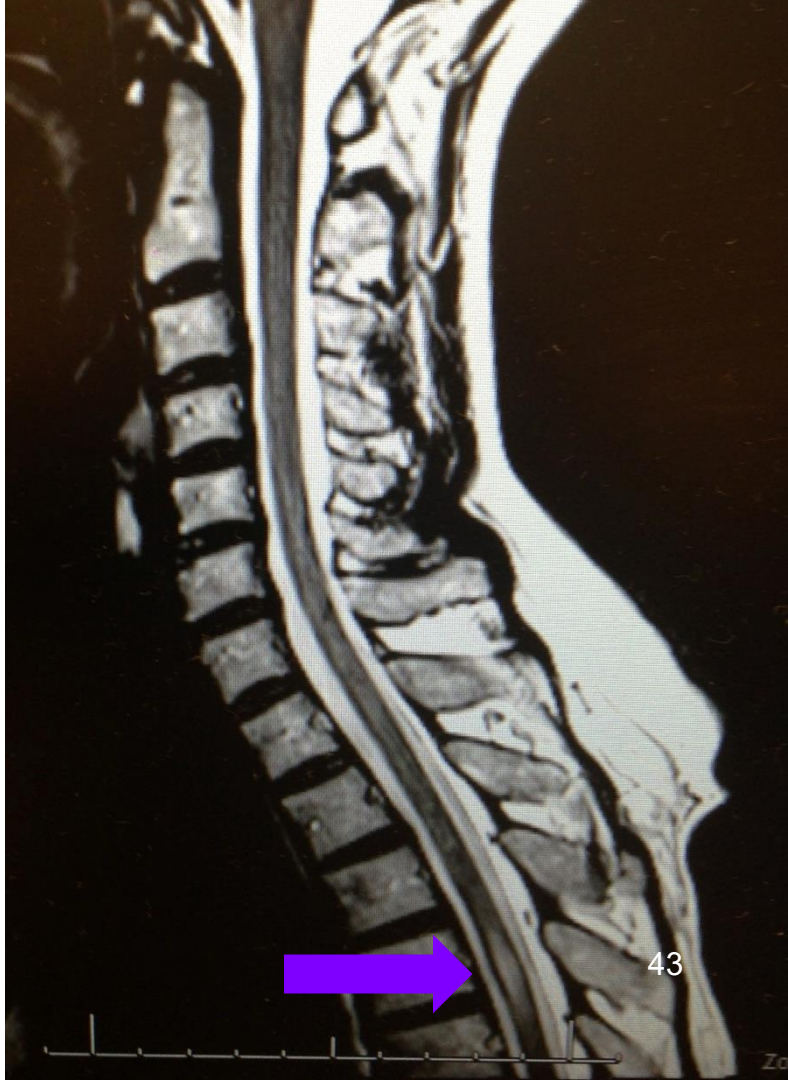
- Recombinant Zoster Vaccine (RZV) and Risk of Dementia (Tang E Vaccine online 28 Dec 2024)
  - Retrospective cohort study of USA claims data on 4.5 million persons, 5 yrs maximum follow-up
  - 2 doses decreased risk dementia: hazard ratio (HR) 0.68, $P < .001$; 1 dose: HR 0.89, $P < .001$
  - N with 2 doses RZV was 45 to prevent 1 dementia
  - Diagnosis zoster pre vax: increased HR dementia: 1.47, $P < .001$
  - Antiviral treatment decreased HR dementia: 0.42, $P < .001$ if for zoster, 0.59, $P < .001$ for other dx

Case

A healthy person in her 50s developed unilateral radicular thoracic pain and a rash 1 week later. Treatment for HZ was begun; next day had leg numbness and weakness with transverse myelitis due to HZ. At 1 year, still had PHN with constant 5/10 pain, and 8 years later, pain and difficulty walking

Lessons

- Can't predict who will have serious complications of HZ!
  - Non-PHN complications as common in younger patients as older
- Recommend vaccination against HZ at age 50+!!



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Update on Zoster Vaccination

- CDC Surveillance Vaccination Coverage among Adults (MMWR 2021; 70:1-26)
  2018: ZVL: 3.7 percent age 50–59, 28 percent age 60+; RZV: 0.6 percent age 50+
- National Health Interview Survey **2021** (CDC.gov/vaccines AdultVaxView)
  RZV: 12.2 percent age 50–59, 22 percent age 60+
- Vaccine co-administration in adults: An effective way to improve coverage
  (Bonanni P Hum Vaccin Immunother. 2023; 19:21957856)
- Effectiveness of RZV in Real-World Setting (Zerbo O. Ann Intern Med 9 Jan 2024)
  2 million age 50+ in Vaccine Safety Datalink, HZ dx, and antiviral rx
  2 doses: 76 percent effective, 73 percent 4th year; 1 dose: 64 percent effective, 52 percent yr 3

Conclusions:

- 2 dose series is important for long-term efficacy, but second dose can be delayed
- Need to improve coverage of RZV starting at age 50 and for immunocompromised starting at 19
  – MDs need to strongly recommend it!
- ***Importance of a moral obligation to do the right thing to change behavior***
  (Arthur Caplan, PhD, talk on flu vaccination)

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Thank you

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