

**THE CHALLENGE OF
DIAGNOSING HUMAN
HERPESVIRUS 7 (HHV-7)
ENCEPHALITIS**

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HUMAN HERPESVIRUS 6 & 7

HHV-6A (Variant A)

? disease

HHV-6B (Variant B)

Exanthem subitum

HHV-7

Exanthem subitum

1^o HUMAN HERPESVIRUSES-6 & -7 (HHV-6/-7) INFECTIONS

MAY BE

IMPORTANT CAUSES OF ENCEPHALITIS IN 1ST 3 YEARS

BRITISH ISLES-WIDE SURVEY OCT 1998 – SEPT 2001

**USING THE NETWORK OF THE BRITISH PAEDIATRIC
SURVEILLANCE UNIT (BPSU)**

Ward et al. Arch Dis Child 2005; 90: 619-623

Reporting Case Definition

Suspected encephalitis

and/or

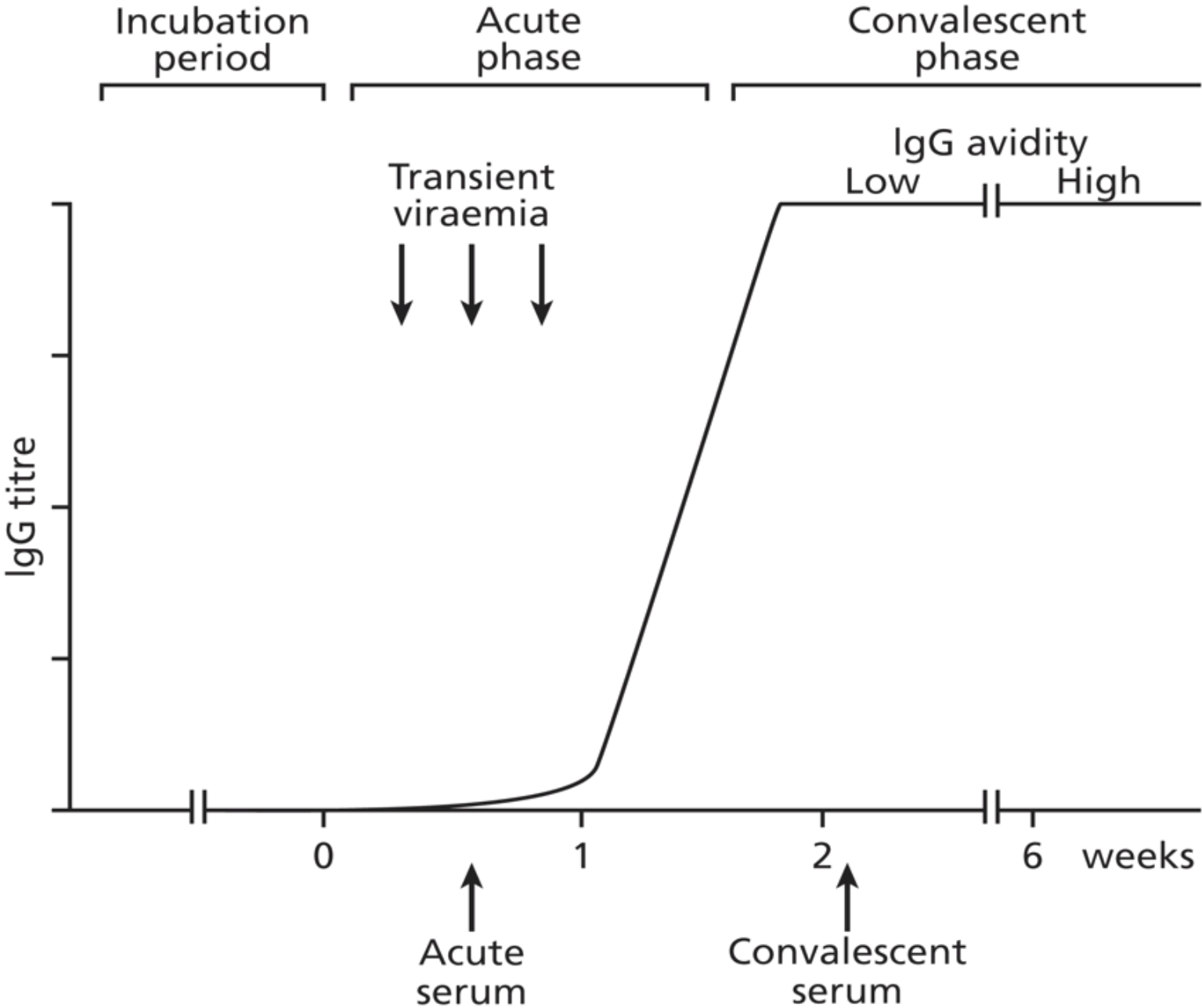
Severe convulsions with fever

with a total duration of >30 mins

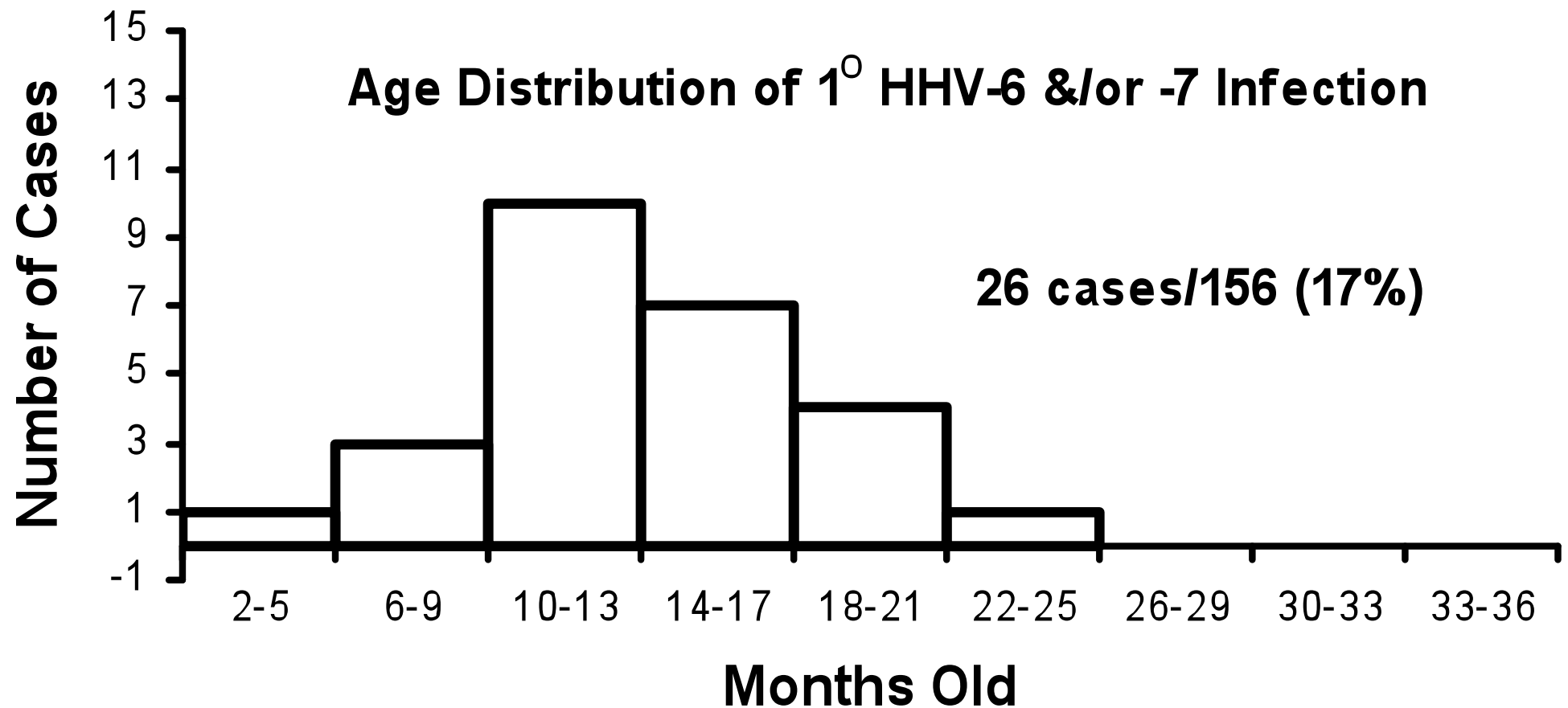
***or* followed by encephalopathy for 2-23 h**

***or* followed for ≥ 24 hrs by paralysis or other neurological signs not previously present**

DIAGNOSIS OF PRIMARY HHV-7 INFECTION



British Isles wide survey of encephalitis



Note – peak at 10-13 months

1^o HHV-7 cases

	<u>HHV-7</u>
No. of cases	15
Days in hospital	5
CSF pleocytosis	2
Max temperature ° C	38.7
No. c. convulsions	
≤ 30 minutes	2
>30 minutes	
(status epilepticus)	13
No. ventilated/sedated	6

CONCLUSIONS

1^o HHV-7 infections:

Cause of status epilepticus with fever in the first 2 years of life.

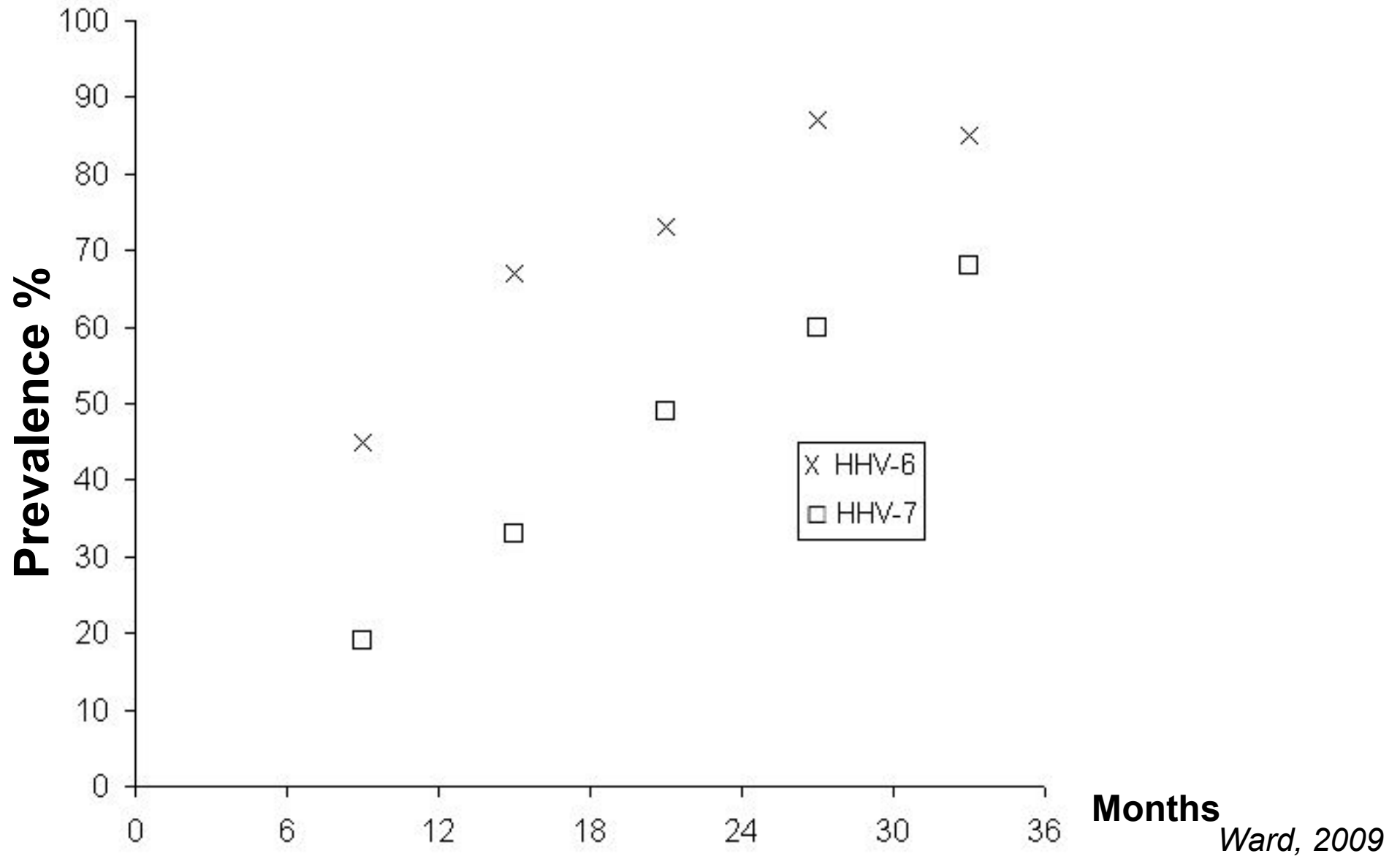
BUT

Viral DNA only in CSF of 50% of cases

&

Does HHV-7 cause encephalitis?

Prevalence of HHV-6/HHV-7 infections in British children in relation to age.



Delayed 1^o HHV-7 infection in a 19 year old with encephalitis & flaccid paralysis

Days	Serum				CSF*
	HHV-6 IgG		HHV-7 IgG		HHV-6/7
	Titre	Avidity	Titre	Avidity	DNA
2					-/+
5	16,384	High	2,048	Low	
14	8,192	High	4,096	Low	

* 63 lymphocytes, 2 neutrophils x 10⁶/l, protein 0.8g/l;
 HSV, VZV & enterovirus negative

Ward , 2002

Delayed 1^o HHV-7 infection & Neurologic Disease

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Pediatrics 133 (2014) e1541-1547

Prospective Encephalitis Registry

1998 – 2011: 260 cases aged 1 month – 17 yrs

Diagnostic workup included CSF test for HHV-7 DNA

2 adolescents with delayed primary HHV-7 infection

2/159 children aged 6-17 years – 1.3% (0.2-2.4*)

* 95% confidence limits

CONCLUSIONS

HHV-7 status	CNS disease	CSF HHV-7 DNA
1 ⁰ HHV-7 infection in young children	Yes ? Encephalitis	+/-
Delayed 1 ⁰ HHV-7	Yes Encephalitis	+
HHV-7 reactivation	?	?

COLLABORATORS

- Euan Ross
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