Cerebral imaging and neurodevelopmental outcome after entero- and human parechovirus sepsis in young infants

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Background and aims

- Enterovirus (EV) and human parechovirus (HPeV) are major causes of sepsis-like illness in young infants.
- Investigation of cerebral imaging and neurodevelopmental outcome after EV and HPeV infection.

Population

- Infants < 90 days of age
- Admitted to a medium care unit
- Proven EV- or HPeV-induced sepsis-like illness (PCR)

Study investigations

- Repeated physical and neurologic exams
- Cerebral ultrasound (during admission)
- Cerebral MRI (4 weeks after infection)
- Hearing screening (4 weeks after infection)
- Milestone development (age 6 months & 1 year)
- Bayley's Scale of Infant Development 3rd ed. (BSID III) (age 1 year)

Conclusion

- One infant had severe neurodevelopmental delay.
- Neurologic sequelae didn't develop more often than in the normal Dutch population.
- This cohort is small, especially HPeV (n=4/26).

Future research

- Further studies can better assess developmental outcome with follow-up until school age.

Results:	Number of abnormal investigations / number of total (percentage)
Hospital admission (n=26):	
Neurologic examination	0/26
CSF pleocytosis	8/20 (40%)
Cerebral ultrasound	0/19
Follow-up visit; 4 weeks after infection (n=22):	
Neurologic examination	1/22 (5%) [▲]
Cerebral MRI (cMRI)	0/19
Hearing screening	0/22
Follow-up visit; at age of 6 months (n=18):	
Neurologic examination (incl. milestones)	1/18 (6%) [~]
Follow-up visit; at age of 12 months (n=20):	
Neurologic examination (incl. milestones)	0/20
BSID III:	
Cognitive scale	3/20 (15%) [^]
Fine motor scale	0/20
Gross motor scale	6/20 (30%)*
Total (BSID III)	8/9: moderate delay 1/9: severe (gross motor) delay

[▲] Slight hypertonia of the lower extremities (recovered at follow-up visits).

[~] General hypotonia with slipping through (recovered at one year of age).

[^] Two of these infants also had moderate gross motor delay.

* 1/6 infant had severe gross motor delay (scaled score <4 (<2SD)), this recovered with physiotherapy.

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