SEQUELAE AFTER MEASLES VACCINATION IN CHILDREN WITH SIGNIFICANT NEUROLOGIC DISEASE

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Background

Measles outbreaks constitute considerable healthcare burden and pose significant risk for unvaccinated children due to underlying medical conditions. In Greece we have been facing a measles outbreak since May 2017, involving more than 2700 cases (www.keelpno.gr). Highest frequency has been observed among unvaccinated Roma children (60.2%) and partially vaccinated adolescents and young adults (78.8% of cases in general population). Measles vaccination is recommended for outbreak control. Our aim is to present a small case series of previously unvaccinated children with underlying severe neurologic disease who were vaccinated during the measles outbreak over the past 12 months and to describe vaccination associated adverse effects.

Methods

Medical records of children followed in our neurology clinic were reviewed to identify children at risk for measles. Unvaccinated or partially vaccinated children were considered for MMR vaccination eligibility. Children under medical immunosuppression or with severe encephalopathy were excluded. All other children were contacted by phone and asked to present for MMR vaccination.

Results

Overall, parents of 26 children were contacted and the need for MMR vaccination was explained in detail. Four parents of children with intractable epilepsy (3 girls, mean age 2.1 years) denied vaccination, while 22 children were enrolled in this prospective study. Table 1 depicts their demographic and clinical characteristics.

Side effects post MMR are shown in Table 2. Seizures occurred both with and without fever (4 children, 50% each).

Fever post MMR vaccination occurred between the 5th and 8th day post-vaccination. No hyper-pyrexia was noted and fever lasted less than 48hrs. Fever was not associated with focal signs of CNS involvement. Only two children developed fever without seizures post 2nd MMR dose.

No child with fever or seizures had any clinical evidence of co-infection. One child with Dravet syndrome developed status epilepticus requiring short hospitalization. Seizures occurring with fever resembled to febrile seizures with no signs of encephalopathy. Afebrile seizures lasted for 1-3 days, involved mainly myoclonic seizures and were characterized by an increase in frequency of short duration spasms. No aggravation of epilepsy course or modification of antiepileptic treatment was noted.

Interestingly, all children that developed seizures (febrile or afebrile) post 1st MMR dose had repeat episode after their second MMR vaccination as well.

MMR-V vaccination was linked to increased likelihood of fever since both children receiving MMR-V developed febrile seizures.

Table 1: Demographic and clinical data of the 22 children enrolled

Data	No (%)
Boys (%)	10 (45.5%)
Mean Age (range)	3.9 years (14 months-11 years)
Previous MMR vaccination	8 (36.7%)
Neurologic diagnosis:	
Intractable epilepsy	16 (73%)
Neurometabolic disease	6 (27%)

Table 2: Vaccination adverse events (22 children, 36 vaccines)

Adverse events	No (%)
Fever (>38 °C)	8 (22.2 %)
Seizures	12 (33.3 %)
Neurodevelopmental regression	0
Severe adverse event (hospitalization post status)	1

Discussion

The majority of parents accepted MMR vaccination in view of measles outbreak.

Regarding vaccination-induced fever and in agreement with previous reports, fever onset appeared 1-2 weeks post-vaccination coinciding with viral replication.

Vaccination-associated seizures were noted solely in the epilepsy group. No child with neurometabolic disease presented with first seizure episode post MMR vaccination. The equal share between afebrile (4/8) and febrile (4/8) seizures, implies the epileptic basis of the seizures rather than the predisposition for a febrile-induced event.

Conclusions

MMR vaccination is safe for children with severe neurologic disease. The current outbreak gave us the opportunity to describe the absence of severe adverse events following MMR vaccination in this cohort. This experience should help pediatric neurologists in achieving higher vaccination coverage among their patients.

References

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