E-Poster

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MRI Patterns and Functional Performance in Children With Cerebral Palsy Born 2001-2015. Data From the Portuguese Cerebral Palsy Surveillance Program

Topic: Health Conditions (Nervous System, Musculoskeletal System, Cardiopulmonary System)

Ana Cadete[1], Eulalia Calado[1], Margarida Abrantes[2], Joaquim Alvarelhão[3], Alexandra Cabral[4], Teresa Folha[5], Daniel Virella[5]

[1]*Centro de Reabilitação de Paralisia Cerebral Calouste Gulbenkian, Santa Casa da Misericordis de Lisboa, Lisboa, Portugal*
[2]*Neonatology Department, Unidade Local de Saude de Santa Maria, Lisboa, Portugal*
[3]*School of Health Sciences, Aveiro University, Aveiro, Portugal*
[4]*Centro de Paralisia Cerebral de Coimbra, Coimbra, Portugal*
[5]*Epidemiology, Instituto Superior de Saude Doutor Ricardo Jorge, Lisboa, Portugal*

BACKGROUND

Magnetic resonance imaging classification system (MRICS), developed by the Surveillance of Cerebral Palsy in Europe (SCPE), describes MRI patterns associated with the clinical manifestations and the timing of vulnerability in different areas of the brain. The Portuguese Surveillance of Cerebral Palsy (PVNPC) registers 5-to-8-year-old children with cerebral palsy (CP) born since 2001. A partner of SCPE, both share methodology. We study the association between MRI patterns and clinical type, function, complexity and schooling integration.

METHODS

Data from children born between 2001-2015 were analyzed. MRICS was applied, clinical subtype and function were classified according to SCPE definitions. Portuguese scales for CP Complexity (CPCS) and integration in schooling were used. Chi-square test was applied and Odds Ratio was estimated with 95% confidence intervals.

RESULTS

1,666 of 2,733 registered children had MRI performed and classified (61.0%; 95% CI, 59.12-62.78). MRI findings: Class A Malformation 278 (16.7%; 95% CI, 14.95-18.54), Class B White Matter Injury 590 (35.4%; 95% CI, 33.14-37.74), Class C Gray Matter Injury 511 (30.7%; 95% CI, 28.49-37.74), D Miscellanea 197 and Class E Normal 90 (5.4%; 95% CI, 4.39-6.57).

Spastic-CP was the most common clinical type across all MRI subgroups. Dyskinetic CP was more frequent ($p < 0.0001$) in children classified as type-E (23.0%) and Class C, while ataxic-CP was most prevalent in children with Class D (25.9%), Class E (25.3%), and Class A (10.9%).

Children on Class B had the highest level of autonomy, levels I-II in GMFCS 55.9%. Compared to children with Class B, those classified on Class A had two times the odds for GMFCS III-V (OR 2.0; 95% CI, 1.49-2.81) and those on Class C, 20% higher odds for GMFCS III-V (OR-1.2; 95% CI, 0.952-1.55),

Children on MRI Class B had the lowest proportion of cases with multiple complexity indicators (66.6%, $p < 0.001$). In contrast, those on Class A were 3.5 times more likely to register more than one complexity indicator (OR 3.5; 95% CI, 2.45-5.07). Children on MRI Class E were the most likely to be included in the regular education system (95.5% enrolled in preschool; $p < 0.001$).

CONCLUSION

These data clarify the association between structures and function, providing prediction of future impairments and pointing out to opportunities for prevention and treatment, planning health and rehabilitation care of the child with CP and supporting individual counselling.

Statement of Disclosures

None

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Corresponding Author:
Ana Cadete
Centro de Reabilitação de Paralisia Cerebral Calouste Gulbenkian, Santa Casa da Misericordis de Lisboa, Lisboa, Portugal
Email: ana.cadete@gmail.com