High intellectual Potential and Asperger's Syndrome leads for a differential diagnosis

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High Intellectual Potential and Asperger's Syndrome: some leads for a differential diagnosis

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INTRODUCTION

Recent studies tend to show that heterogeneous psychometric profiles with high intellectual potential in children could sometimes be associated with disorders of social interactions and communication suggesting possible links with the symptomatology of Asperger's syndrome. So, could the socialization and communication disorders associated with socio-emotional disorders of HIP children characterized by a very heterogeneous psychometric profile suggest a differential diagnosis of Asperger's syndrome for some of these individuals? Our objective was to conduct a comparative study between different profiles of HIP groups and typical developing children in order to better understand the clinical variables that could differentiate HIP and Asperger's syndrome

METHODOLOGY

Participants: 62 children 7 to 15 years old

- N = 24 children with HIP (mean age: 10.10 ± 2.5 years; 14 boys and 10 girls) with heterogeneous IQ profile * (HIP/HE)
- N = 13 children with HIP ((mean age: 11.8 ±1.5 years; 6 boys and 7 girls), with homogeneous IQ profile (HIP/HO)
- N = 5 Children diagnosed with Asperger'syndrome and characterized by a HIP (mean age: 11.10 ± 3 years), 5 boys (AS/HIP).
- N=20 children with typical development (mean age : 11.2 ± 2.6 years) 10 boys and 10 girls.

All the children with HIP had been assessed by clinicians and identified as having Total I.Q ≥130 (by the WISC-IV).
**The heterogeneous profile is defined by a difference of at least 23 points between the higher and the lower index score (Total I.Q≥130)*

Assessments :

It was administrated to each subject of the four groups:

- To assess social cognition and emotional adaptation: Parents completed two questionnaires that were originally developed by Baron-Cohen: **the Empathizing Quotient (EQ) and Autism spectrum Quotient (AQ) tests.**

- To assess the prevalence of anxiety and depressive disorders: The Multiscore Depression Inventory for Children (MDI-C, Berndt & Kaiser, 1999) was used.

The study was approved by the local ethics committee of Paris Descartes University, Sorbonne Paris City (IRB: 00012019 – 49).

RESULTS

Table 1/2: Mean scores (standard deviations) of HIP/HO, HIP/HE and AS/HIP groups versus control group in the social cognition function/ or of HIP (AQ<30), HIP AQ ≥30 and AS/HIP groups in these functions :

	AS/HIP	HIP/HE	HIP/HO	Control	F(3.58)
AQ total	35.200 (9.471)	23.875 (8.926)	18.308 (7.729)	11.900 (5.730)	<.001
Communication	7.000 (2.915)	4.083 (2.501)	2.308 (1.974)	1.850 (1.785)	<.001
EQ total	17.400 (3.209)	31.375 (14.018)	38.462 (10.898)	40.050 (8.846)	<.001
Social competence	9.000 (1.732)	4.458 (2.718)	3.231 (2.088)	1.300 (1.418)	<.001

In Communication and Social competence scales, the maximum score is 10 points, the more the score increases, the more it deviates from the norm of children with typical development.

	HIP (AQ<30)	HIP (AQ≥30)	AS/HIP	F (2.39)
EQ total	38.448 (11.067)	17.250 (4.166)	17.400 (3.209)	21.779 <.001
Communication	2.552 (1.660)	6.750 (2.053)	7.000 (2.915)	22.974 <.001
Social competence	3.172 (1.983)	7.125 (1.959)	9.000 (1.732)	27.074 <.001

In Baron-Cohen et al.'s study (2006), approximately 90% of the adolescents with AS/High-Functioning Autism scored 30+ to the AQ test. Consequently, we extracted from our HIP groups the children who had obtained a score of 30 points or more on this test because this threshold could potentially be indicative of undiagnosed Asperger's for some of them.

Groups	FSIQ /SD	Total AQ /SD
HIP (AQ≥30)	143,25 /4,89	34,87/ 3,79
AS/HIP	137,60 /5,32	35,2/ 9,47
HIP (AQ<30)	139,20/6,40	18,34/5,96

Compared to the control and the HIP/HO group, the HIP/HE group had a higher mean score to the AQ test and more difficulties in communication and social abilities.

- Moreover, among the high-potential children, some had a score ≥ 30 on the AQ test and performed similarly to children with Asperger syndrome (and high potential) on the empathy test, social and communication subscales. It is therefore possible that some high-potential children in our study have undiagnosed Asperger syndrome.

- However, in the anxiety-depression domain, as assessed by the MDI-C, there were no significant differences between AS/HIP children and the two HIP groups. Overall, our results highlight a more anxious personality in children with HIP, regardless of their psychometric profile, compared with children with typical development.

CONCLUSION

For children with HIP and a very heterogeneous psycho-cognitive profile associated with considerable difficulties in social interaction, empathy and communication, these findings suggest that the completion of an AQ questionnaire should be mandatory. In the case of scores above a certain AQ threshold, a complete child multidisciplinary assessment should be indicated to test the hypothesis of ASD. The AQ test, which is a screening rather than a diagnostic tool for autism, is freely available and easy to administer. We think it could therefore be valuable in terms of improving the detection of undiagnosed cases of Asperger's syndrome in children with HIP.