Life-style and occupational risk factors for early onset dementia in an Italian community

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Background

Early onset dementia (EOD) is defined as dementia with symptoms onset before 65 years, deeply impacting on patients' employment and income, as well as on their families. Little is known about role of occupational and life-style risk factors, we aimed at assessing their role in disease etiology

Table 1. Baseline characteristics of study population.

	Cases, n (%)	Controls, n (%)
All subjects	58 (52)	54 (48)
Age at questionnaire filling		
Mean (SD)	65.6 (5)	63.8 (10)
<65 years	22 (38)	28 (52)
>65 years	36 (62)	26 (48)
Age at disease onset		
Mean (SD)	59 (4.7)	
Sex		
Men	25 (43)	23 (43)
Women	33 (57)	31 (57)
Smoking habits		
Ever	35 (63)	30 (58)
Never	21 (37.5)	22 (42.3)

Abbreviations: EOD, early onset dementia; n, number of subjects; SD, standard deviation.

Methods

Using a case-control study design, we recruited all EOD cases resident in Modena province from October, 2016 to October, 2019, and a referent population drawn from patients' care-givers. We investigated residential, life-style history, and occupational and environmental exposures to toxics through a self-administered questionnaire. We used a multivariate unconditional logistic regression model adjusted for sex, age, and education to calculate odds ratios (ORs) and 95% confidence intervals (CIs) of EOD risk for exposed vs. non-exposed subjects.

Results

Overall, fifty-eight EOD cases and fifty-four controls agreed to participate. Possible life-style risk factors are to be widowed (10.3% cases vs. 2% controls), and to have a lower educational attainment. Also smoking (OR 1.3, 95% CI 0.6-2.9), playing football (OR 2.2, 95% CI 0.5-9.3) or cycling (OR 2.3, 95% CI 0.4-13.4) were associated with higher EOD risk, although overall sport practice appeared to be a powerful protective factor (OR 0.4, 95% CI 0.2-0.9), particularly swimming (OR 0.2, 95% CI 0.0-0.8). Among occupational factors, disease risk was associated with exposure to aluminum (OR 2.6, 95% CI 0.4-15.7), pesticides (OR 2.3, 95% CI 0.7-7.8), and dyes, paints or thinners (OR 1.7, 95% CI 0.6-5.0). Finally, disease risk was not associate to overall history of any trauma, while head trauma and especially upper arm trauma showed positive association.

Table 2. Odds ratio (OR) and 95% confidence interval (CI) of EOD risk in relation to exposure to environmental risk factors.

Risk factors	OR[1]	(95% CI)
Aluminium	2.6	0.4 - 15.7
Pesticides	2.3	0.7 - 7.8
Agricoltural exposure	3.1	0.7 - 13.3
Dyes, paints or thinners	1.7	0.6 - 2.9
Playing football	2.2	0.5 - 9.3
Cycling	2.3	0.4 - 13.4
History of head trauma	1.2	0.3 - 4.1
Upper arm trauma	2.2	0.7 - 7.5
Smoking	1.3	0.6 - 2.9
Overall sport practice	0.4	0.2 - 0.9

[1]Adjusted for sex, age and educational attainment

Conclusions

Despite the study limitations, our results appear to support a role of modifiable risk factors in EOD etiology, particularly of some chemical exposures and professional sports, while overall sports practice may have a beneficial effect.

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