

# Depression and cognitive impairment in isolated focal-onset dystonia: prevalence and risk factors in a group of Romanian patients

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## Objective

To assess the prevalence of depression and cognitive impairment and their potential risk factors in a group of Romanian patients with isolated focal-onset dystonia (IFD).

## Background

The IFDs are a heterogeneous spectrum of movement disorders characterized by intermittent or sustained non-physiological postures. Clinical and epidemiological observations suggest that people with IFD may have higher rates of depression compared with the general population, while the association with cognitive impairment is inconsistently reported. A causal relation between depression and the facial topography was proposed, but available evidence is scarce and conflicting.

## Methods

GENDYS is an ongoing research project financed by the Romanian Ministry of Research and Innovation (UEFISCDI, PN-III-P4-ID-PCE-2016-0696).

Using the GENDYS database, we performed:

1. cross-sectional descriptive statistics, including all patients for whom depression and cognition tests were available (i.e., PHQ-9 and MoCA)
2. a nested case-control analysis on IFD with and without at least moderate depression according to PHQ-9 score, matched for age and sex. For the depression group we used a PHQ-9 cut-off of at least 10 points (i.e., moderate, moderately severe and severe depression). The cut-off was less than 5 for the controls (i.e., no depression). We also evaluated the subjective perception of IFD severity in correlation with the presence of depression and the concomitant oral treatment (clonazepam and trihexyphenidyl), using an analogic scale of 5 degrees (from 0 to 4), values over 2 being considered as cut off for an increased severity perception.

## Results

The cross-sectional analysis included 48 patients (11 males and 37 females, median age 58) with IFD subtypes distribution as in Fig. 1. According to the PHQ-9 scores, 22 patients (i.e., 46% out of the 48) had depression (PHQ-9 $\geq$ 5), higher prevalence being noted in women: 18 females vs 4 males (49% vs 36%,  $p=0.06$ ), see Table 1. Of these 20 were eligible for the case-control study (i.e., 2 men and 8 women per group; mean age was 51.4 +/-14.37 y-o in the studied group and 50.9 +/- 12.88 y-o in the control group).

Fig.1

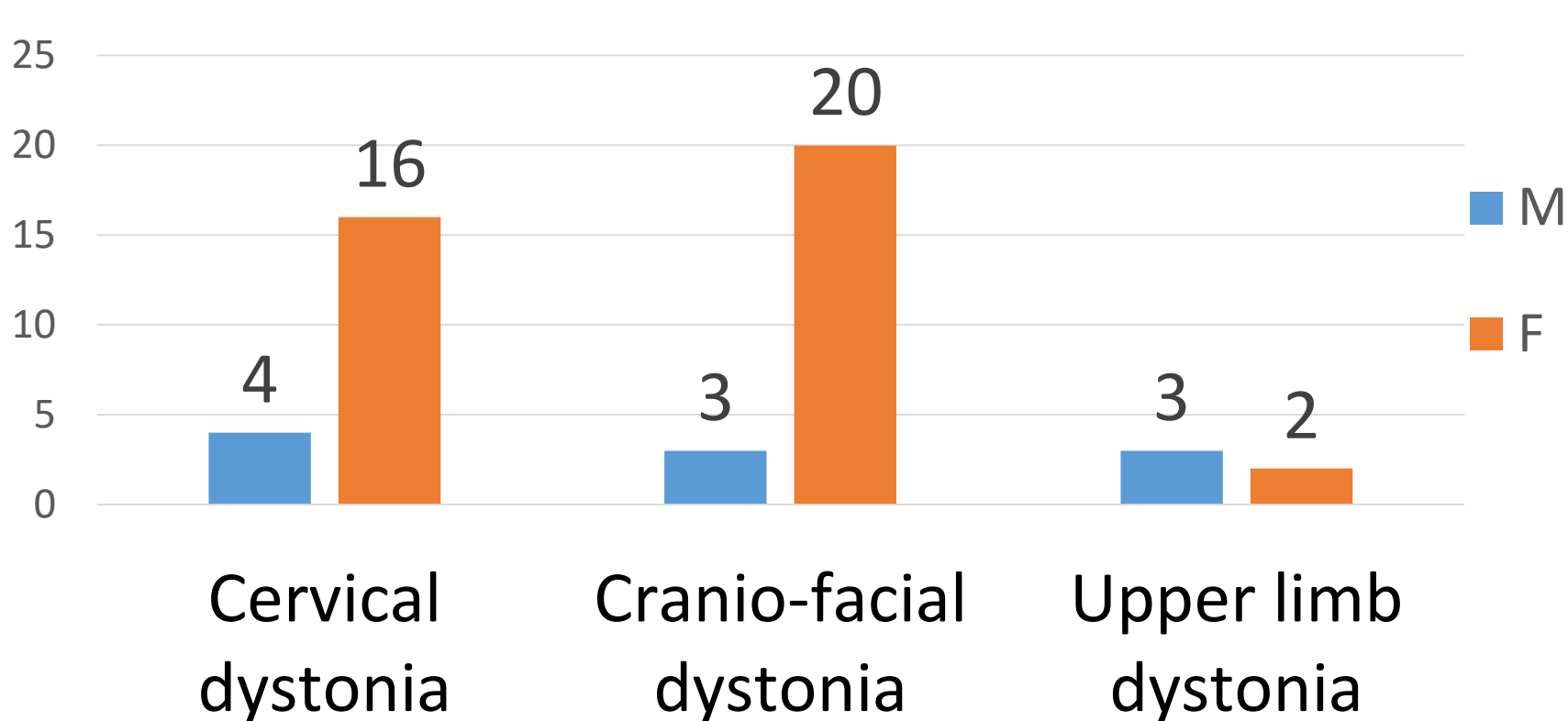


Table 1. Prevalence of depression (PHQ-9 score) in the cross-sectional study

	With depression (PHQ-9 $\geq$ 5)		Total pts.	Without depression (PHQ-9<5)		Total pts.
	pts.	%		pts.	%	
M	4 pts.	36%	22 pts.	7 pts.	64%	26 pts.
F	18 pts.	49%	22 pts.	19 pts.	51%	26 pts.

Table 2. Cognitive status (MoCA score; cutoff: <26)

With depression (PHQ-9 $\geq$ 5)		Without depression (PHQ-9<5)		Total	
12 pts.	54.5%	10pts.	45.5%	22 pts.	100%
$\geq$ 65 y-o	4 pts. 50%	$\geq$ 65 y-o	4 pts. 50%	8 pts.	100%
<65 y-o	8 pts. 57%	<65 y-o	6 pts. 43%	14 pts.	100%

Table 3. Distribution of types of IFD with and without depression in the case-control study

Patients with moderate, moderately severe and severe depression (PHQ-9 $\geq$ 10)				Patients without depression (PHQ-9 < 5)			
M	2	Cervical dystonia	2	M	2	Cervical dystonia	1
		Cranio-facial dystonia	0			Cranio-facial dystonia	0
		Upper limb dystonia	0			Upper limb dystonia	1
F	8	Cervical dystonia	1	F	8	Cervical dystonia	5
		Cranio-facial dystonia	6			Cranio-facial dystonia	3
		Upper limb dystonia	1			Upper limb dystonia	0

Table 4. Severity perception

Patients with moderate, moderately severe and severe depression (PHQ-9 $\geq$ 10)		Patients without depression (PHQ-9 < 5)	
average score $\pm$ S.D.	3,4 $\pm$ 0,66	average score $\pm$ S.D.	2,5 $\pm$ 0,5
increased perception (score = 3-4)	9	increased perception (score = 3-4)	5
moderate perception (score = 1-2)	1	moderate perception (score = 1-2)	5

MoCA scores indicating impairment (<26p) were found in almost half of the patients, with slightly higher prevalence in those younger than 65 y-o (57% versus 43%,  $p=0.1$ ). There were no significant differences in the incidence of cognitive impairment between patients with depression (54.5%) and patients without depression (45.5%). In the case-control study (see Table 2) we included only the patients with significant depression (PHQ-9 score  $\geq$  10), who have been compared to a control group of patients without significant depression, resulting a number of 20 patients (10 patients for each group) matched for gender and age. MoCA scores indicating a cognitive impairment (MoCA<26p) were found in almost half of the patients (9 patients), but with a slightly trend of increased cognitive impairment in patients with depression than in patients without depression (50% vs 40%, OR=1.5,  $p=0.65$ , 95%CI=0,25-8,82); in those with cranio-facial IFD the prevalence of depression was higher than in those with cervical dystonia (60% versus 30%, OR=3.5,  $p=0.18$ , 95%CI=0,55-22,30; see Table 3). A slightly higher risk for depression was associated with facial IFD among all IFDs. The perceived severity of disease (Table 4) has been worst in patients with depression than in those without (OR=9,  $p=0.05$ , 95%CI=0,80-11,14), and concomitant administration of clonazepam and trihexyphenidyl (OR=6,  $p=0.12$ ).

## Discussions and conclusions

Depression may have a higher prevalence in patients with blepharospasm and other cranio-facial IFDs and is associated with the perceived severity of the disease. A negative impact of commonly used drugs for IFD is plausible and should be addressed in future studies. Though most of these results are statistically non-significant, they indicate a trend of non-motor associated manifestations (depression and impaired cognition) in accordance with other published studies. These data are only partial and preliminary, being part of an ongoing study which will also correlate the clinical phenotypes of IFD with eventual genetic mutations identified by NGS technics.

## Selected bibliography

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