Orofacial function and open bite malocclusion in rare disorders

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Aim

To create and compare orofacial dysfunction profiles for individuals with rare disorders in correlations to age, with and without open bite malocclusion.

Since 2013 Mun-H-Center have used the Nordic Orofacial Test -Screening and the MHC Observation Chart and questionnaire to examine individuals with rare disorders in a standardized way. Data that describes the orofacial phenotype in rare disorders (affecting <5/10 000) is collected in the MHC database with the purpose of disseminating knowledge about orofacial function and oral health to patients and professionals.

Materials and Method

This database study included 794 individuals age 3-83 with rare disorders. The sample was divided into two groups, 139 (59 females, 80 males mean age 14.4 ± 13.1 years) with open bite malocclusion and 655 individuals (297 females, 358 males mean age 14.5 ±12.2 years) without open bite.

Data was collected in the MHC database between 2013-2021 using the MHC Orofacial Observation Chart (1,2) together with the Nordic Orofacial Test - Screening (NOT-S)(3). The maximum score of the NOT-S is twelve points, one for each domain. A score >2 reflects orofacial dysfunction. All assessments were made by a dentist and a speech language pathologist. The clinical variable selected from the MHC chart was presence of open bite.

Statistical non-parametric tests (Chi Square) were used for comparisons between groups.

Results

The orofacial dysfunction profiles display similar trends (Fig. 1). The total NOT-S score was higher in the open bite group than in those without, but was not statistically significant. No correlation was found between age and NOT-S scores. “The NOT-S domains II”, “Breathing”, 1 “Face at rest” and 4 “Masticatory muscle and jaw function” was significantly higher in the open bite group compared to those without open bite (Table 1).

Table 1. NOT-S contains of two parts with six domains in each. The two groups “open bite” and “without open bite” differed significantly in 3/12 orofacial domains.

Interview part	**Open bite** (n=139)	**Without** (n=655)	**p**
I Sensory function	24%	22%	0.738
II Breathing	37%	22%	<0.001
III Habits	32%	38%	0.247
IV Chewing and swallowing	52%	51%	0.926
V Drooling	33%	22%	0.008
VI Dry mouth	12%	17%	0.166
Examination part			
1 Face at rest	50%	33%	<0.001
2 Nose breathing	12%	6%	0.019
3 Facial expression	31%	28%	0.469
4 Masticatory muscle & jaw function	35%	17%	<0.001
5 Oral motor function	33%	23%	0.018
6 Speech	46%	38%	0.105

After Bonferroni adjustment, correlation is significant at p< 0.0042

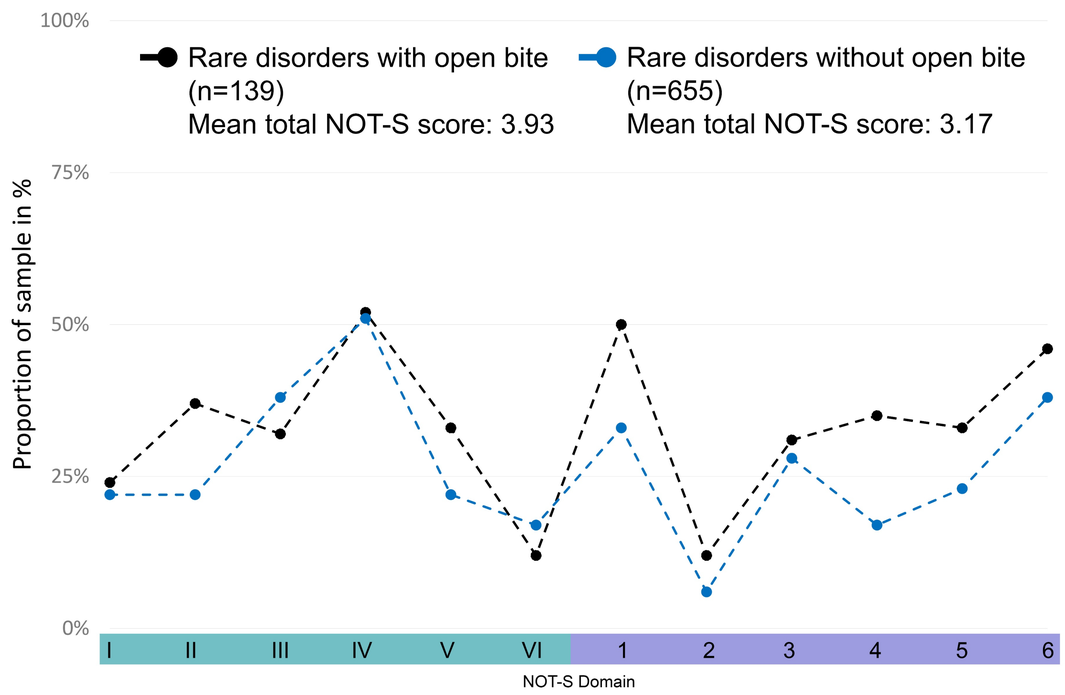

Figure 1. Orofacial dysfunction profile in rare disorders with and without open bite malocclusion

Conclusion

Coexisting orofacial dysfunctions are more common in individuals with rare disorders and open bite malocclusion than in those without open bite. Some of these dysfunctions may be contributing factors in open bite development. Early assessment and intervention might prevent severe malocclusion and increase orofacial function in this patient group.

1. Sjögreen L, Mogren Å, Andersson-Norinder J, Bratel J. Speech, eating and saliva control in rare diseases – a database study. J Oral Rehabil. 2015.
2. Sjögreen L, Andersson-Norinder J, Bratel J. Oral health and oromotor function in rare diseases – a database study. Swed Dent Journal. 2015;39:23-37
3. Bakke M, Bergendal B, McAllister A, Sjögreen L, Asten P. Development and evaluation of a comprehensive screening for orofacial dysfunction. Swed Dent J 2007;31:75-84.

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