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CLINICAL RESEARCH ARTICLE

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Effects of dulaglutide on alcohol consumption during smoking cessation

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23 Methods

24 Statistical analysis

25 The primary outcome, differences in total amount of alcohol intake in glasses per week at week 12, was
26 analyzed using a generalized linear model with treatment (dulaglutide vs. placebo) and baseline alcohol
27 consumption as predictors (basic model). A quasipoisson error distribution was used to account for
28 overdispersion. The interaction between treatment and baseline alcohol consumption was examined
29 by adding the interaction term to the basic model. The significance of the interaction term was defined
30 as $p < 0.05$. The basic model for the primary outcome was further adjusted for baseline demographics
31 (i.e., sex, age, level of education, baseline drug abuse, baseline BMI category) and the generalized linear
32 model with the lowest quasi Akaike Information Criterion (qAIC) by backward selection using the bbmle
33 package (1) was kept as final adjusted model. Treatment allocation and baseline alcohol consumption
34 were used as fixed predictors, further adjusting for level of education had the lowest qAIC.

35 To analyze the correlation between changes in consumption of alcohol and smoking status at week 12,
36 the point biserial correlation coefficient was calculated. Patients with missing values on smoking status
37 at week 12 were counted as “still smoking”. Differences in smoking abstinence rates between baseline
38 alcohol consumers vs. non-consumers were analyzed using a Chi-squared test. For this analysis, the full
39 analysis set ($n=255$) was used. Baseline characteristics and abstinence rates from nicotine at week 12 of
40 patients who started drinking were summarized using descriptive statistics. Fisher’s exact test was used
41 to test for group differences in proportions of participants who either started or stopped consuming
42 drugs, who did not consume at either time point (baseline and week 12) or who consumed at both time
43 points. For this analysis, a different set was used which consisted of all participants with data on drug
44 consumption at baseline and week 12 ($n=230$).

45 Supplemental analysis

46 Correlation between weight change and alcohol

47 The correlation between changes in alcohol consumption and weight was estimated using Spearman’s
48 rank correlation coefficient. Our data suggest that there was no correlation ($\rho = -0.09$; $p = 0.3$)

Generalized linear models: Output

Dependent variable: alcohol consumption at week 12
(glasses per week)

	basic	adjusted	with interaction
Dulaglutide	0.71 (0.52, 0.97) p = 0.04	0.64 (0.47, 0.86) p = 0.004	0.58 (0.37, 0.89) p = 0.02
Baseline alcohol consumption	1.06 (1.05, 1.07) p = 0.00	1.06 (1.05, 1.07) p = 0.00	1.06 (1.04, 1.07) p = 0.00
No higher Education		0.63 (0.47, 0.84) p = 0.003	
Interaction: treatment baseline alcohol consumption			1.03 (0.99, 1.07) p = 0.19
Intercept	3.56 (2.79, 4.48) p = 0.00	4.52 (3.47, 5.81) p = 0.00	3.67 (2.87, 4.63) p = 0.00
Observations	151	151	151

52 Tables

53 Supplementary Table S1: Baseline participant characteristics

54 Data describe the full set and are given as medians [IQR] or numbers (%).

	Overall (n=255)	Non-drinkers (n=96)	Drinkers (n=159)
Age	43.0 [33.0, 53.0]	43.0 [33.0, 53.0]	43.0 [33.0, 53.5]
Female sex	155 (60.8)	58 (60.4)	97 (61.0)
Ethnicity			
Caucasian	247 (98.0)	90 (96.8)	157 (98.7)
African	2 (0.8)	1 (1.1)	1 (0.6)
Hispanic	3 (1.2)	2 (2.2)	1 (0.6)
Higher education	151 (59.2)	68 (70.8)	83 (52.2)
BMI category			
normal weight (BMI 18.5-24.9)	13 (5.7)	6 (6.5)	7 (5.1)
overweight (BMI 25-29.9)	12 (5.2)	6 (6.5)	6 (4.4)
obese (BMI >29.9)	204 (89.1)	81 (87.1)	123 (90.4)
Somatic comorbidities			
Pulmonal disease	57 (22.4)	20 (20.8)	37 (23.3)
Cardiovascular disease	70 (27.5)	30 (31.2)	40 (25.2)
Cancer	17 (6.7)	6 (6.2)	11 (6.9)
Gastrointestinal disease	28 (11.0)	8 (8.3)	20 (12.6)
Metabolic disease	48 (18.9)	24 (25.3)	24 (15.1)
Neurological disease	25 (9.8)	8 (8.3)	17 (10.7)
Psychiatric disease	71 (27.8)	25 (26.0)	46 (28.9)
Nicotine consumption			
Pack years	20.0 [11.0, 35.0]	19.5 [10.8, 38.0]	20.0 [11.0, 35.0]
Cigarettes per day	20.0 [15.0, 20.0]	20.0 [15.0, 25.0]	20.0 [15.0, 20.0]
Fagerstroem score	7.0 [6.0, 8.0]	7.0 [6.0, 8.0]	7.0 [6.0, 8.0]
Substance abuse	24 (9.4)	7 (7.3)	17 (10.7)

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References

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Estimation. Published 2022. Accessed January 17, 2023.

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<https://github.com/bbolker/bbmle>