



ASSOCIATION OF INCREASED FRUCTOSE CONSUMPTION WITH ATRIAL FIBRILLATION SYMPTOMS

Sebahat Ullusan¹, Mevlut Serdar Kuyumcu,² Aliye Kuyumcu³, Ahmet Peynirci²

1)Suleyman Demirel University, Faculty of Medicine, 4th Grade MD Student, Isparta, Turkey.

2)Suleyman Demirel University, Department of Cardiology, Isparta, Turkey

3) Suleyman Demirel University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Isparta, Turkey.

Objective: There is the AF classification model accepted by the European Society of Cardiology (ESC) and the European Heart Rhythm Society (EHRA) and the EHRA score (mEHRA score) for the evaluation of AF symptoms. Apart from its carbohydrate role, dietary fructose (as sucrose or high fructose corn syrup) has come to the fore in nutrition and dietetic studies whether it can be considered harmful or even a toxin by nature. High fructose consumption induces oxidative stress and thus causes mitochondrial damage in cells. In the light of this information, it is thought that high fructose consumption triggers mitochondrial dysfunction, which causes skeletal specific cells to enter the apoptosis pathway, by oxidative stress. Chronic fructose intake is thought to cause metabolic diseases and heart inflammation. Fructose consumption is the main dietary sugar that causes the progression of cardiovascular diseases and cardiac arrhythmias.

Parameters	EHRA I (n=40)	EHRA II (n=40)	EHRA III (n=40)	EHRA IV (n=40)	p value
Energy, (kcal)	2078 ± 350	2237 ± 338	2218 ± 453	2276 ± 429	0.132
Carbohydrate, (g)	74.7 ± 20.9	75.0 ± 23.5	78.4 ± 20.1	77.7 ± 20.7	0.814
Carbohydrate, (TE %)	14.7 ± 3.1	13.7 ± 3.2	14.6 ± 2.4	14.0 ± 2.2	0.285
Protein, (g)	102.8 ± 23.6	116.2 ± 26.8	113.2 ± 29.7	113.3 ± 24.9	0.120
Protein, (TE %)	44.2 ± 6.8	46.3 ± 7.5	45.7 ± 7.0	44.7 ± 5.6	0.495
Lipid, (g)	208.8 ± 48.5	216.7 ± 45.9	212.5 ± 54.9	226.5 ± 57.1	0.471
Lipid, (TE %)	40.9 ± 6.2	40.0 ± 7.9	39.7 ± 7.3	41.3 ± 6.1	0.690
Fiber, (g)	22.8 ± 6.9	24.8 ± 7.5	24.4 ± 8.3	25.5 ± 8.4	0.478
Fructose, (g)	21.2 ± 5.6	27.8 ± 9.7	30.1 ± 8.3	53.6 ± 19.4	<0.001
Fructose, (TE %)	3.9 ± 1.0	5.1 ± 1.8	5.5 ± 1.6	8.9 ± 2.8	<0.001

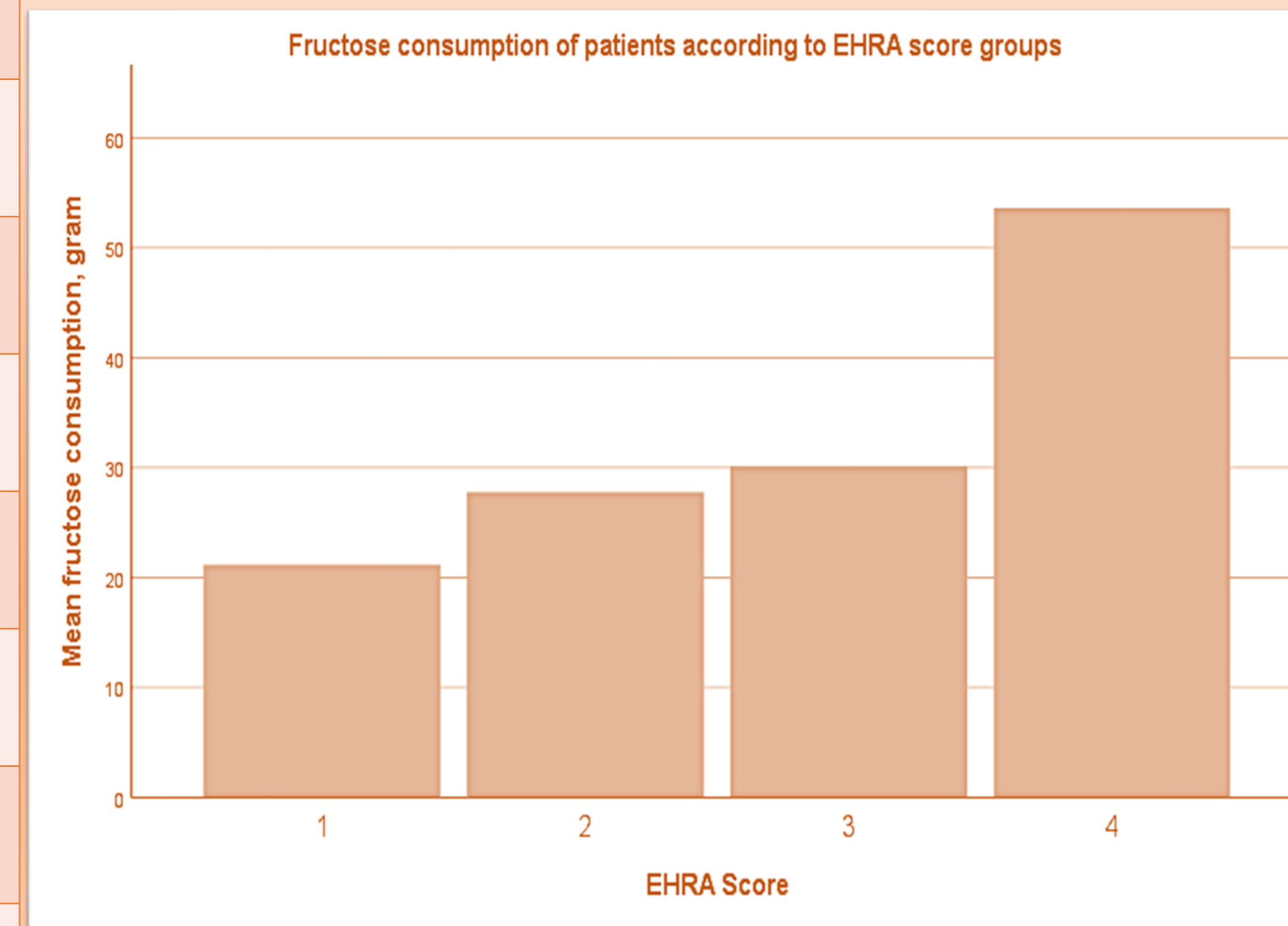


Table 1: Comparison of daily diet energy, macronutrient, and fructose consumption. Figure 1. Fructose consumption of patients according to EHRA score groups

Methods: AF patients admitted to the outpatient clinic were retrospectively scanned from the archive. Four groups of 40 patients were formed randomly according to EHRA scoring. Participants used a dietary record to provide details of nutrient consumption and all of the data from the 2 groups were compared.

Results: This study revealed statistically that a relationship between fructose consumption level and increased AF symptoms and mEHRA score (p<0,001), left atrium diameter and mEHRA score (p<0,001).

Table 2. Baseline and demographic characteristics of patient groups.

Parameters	EHRA I (n=40)	EHRA II (n=40)	EHRA III (n=40)	EHRA IV (n=40)	p value
Age, years	62.5 ± 10.6	62.7 ± 11.3	61.5 ± 11.6	66.8 ± 9.7	0.657
Female, n (%)	20 (50.0 %)	20 (50.0 %)	20 (50.0 %)	20 (50.0 %)	
BMI, kg/m ²	26.9 ± 3.1	27.4 ± 3.0	28.1 ± 3.3	28.9 ± 3.4	0.201
Hypertension, n (%)	12 (30.0%)	11 (27.5%)	17 (42.5%)	17 (42.5%)	0.340
Diabetes Mellitus, n (%)	10 (25.0%)	12 (30.0%)	13 (32.5%)	14 (35.0%)	0.794
Dyslipidemia, n (%)	8 (20.0%)	10 (25.0%)	13 (32.5%)	14 (35.0%)	0.432
Ejection fraction, (%)	55.5 ± 10.2	51.9 ± 10.4	53.9 ± 9.9	47.9 ± 11.9	0.187
Left atrium diameter, mm	38.5 ± 3.5	40.3 ± 4.5	43.1 ± 6.1	46.2 ± 8.1	<0.001

Conclusion: Increased fructose consumption has been associated with increased AF symptoms. Excessive fructose consumption may play a role in AF pathophysiology.

Key Words: fructose consumption, atrial fibrillation, m(EHRA) score