Normal and extended release form of metformin in type 2 diabetıc and pre-diabetic patients

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Objectives

- Metformin is usually well-tolerated and commonly used oral-antidiabetic in type-2 diabetes and pre-diabetes. The most common side effects are gastrointestinal (GI) ones. It is proposed that, extended-release form of metformin has less gastrointestinal side effects. We aimed to compare the extended-release and normal-release form metformin in type-2 diabetic and prediabetic patients for gastrointestinal tolerability, weight effect and glycemic control.

Methods

- Seventy-three newly diagnosed type-2 diabetic or prediabetic patients (mean age 43.9 ± 12.1) enrolled in the study.
- Normal-release(group I, n=39) and extended-release(group II, n=34) metformin were started to patients with randomisation. Gastrointestinal symptom rating scale was used at the beginning and in the first month of treatment for evaluation. Weight effect of metformin forms and glycemic parameters (HbA1c) also considered.

Results

- The number of patients diagnosed with diabetes were 39 (mean age 47.5 ± 8.7) and with prediabetes were 34 (mean age 39.8 ± 14.1), respectively.
- GI disease history were present in 26% of all patients with GI drug use in 13.7%. GI disease history or drug use did not differ significantly between the groups.
- Gastrointestinal symptom scores were similar in both groups at the beginning.
- At least one new symptom were found 20.5% of group I and 26.4% of group II.
- There was a slight increase in symptoms associated diarrhea in both groups and indigestion in the group II. No patients discontined treatment due to side effects.
- Weight loss was observed 3.31 and 3.44kg for prediabetics, 2.38 and 2.75kg for diabetic patients in the group I and II.
- In diabetic patients, HbA1c reduced 1.28% and 1.24% in the group I and II.

		Grup I (n=39)	Grup II (n=34)
GSRS	decreasing	23 (% 59)	16 (% 47)
	increasing	5 (% 13)	8 (% 24)
	unchanging	11 (% 28)	10 (% 29)
Pain	decreasing	11 (% 28)	8 (% 24)
	increasing	0 (% 0)	1 (% 3)
	unchanging	28 (% 72)	25 (% 73)
Reflux	decreasing	7 (% 18)	6 (% 18)
	increasing	0 (% 0)	1 (% 3)
	unchanging	32 (% 82)	27 (% 79)
Indigestion	decreasing	19 (% 49)	5 (% 15)
	increasing	6 (% 15)	8 (% 24)
	unchanging	14 (% 36)	21 (% 61)
Constipation	decreasing	10 (% 25)	12 (% 36)
	increasing	1 (% 3)	1 (% 3)
	unchanging	28 (%72)	21 (% 61)
Diarrhea	decreasing	0 (% 0)	2 (% 6)
	increasing	3 (% 8)	3 (% 9)
	unchanging	36 (% 92)	29 (% 85)

	HbA1c (%) Pre-treatment	HbA1c (%) First month	p*	HbA1c change	p**
Grup I (n=6)	7.15 (6.3-10.4)	6.2 (6.0-8.2)	0.027	-1.1 [(-0.3)-(-3.0)]	0.776
Grup II (n=9)	7.9 (5.9-11.5)	6.6 (5.8-7.9)	0.015	-1.0 [(0.4)-(-4.5)]	

		Grup I	Grup II	p
Body weight change (Kg)	Diabetes	-2.5 [(-4)-1]	-2.5 [(-5)-(-1)]	0.959
	Pre-diabetes	-4.0 [(-8)-4]	-3.0 [(-7)-(-1)]	0.896
BMI change (Kg/m^2)	Diabetes	-0.9 [(-1.8)-0.4]	-1.0 [(-1.9)-(-0.4)]	0.798
	Pre-diabetes	-1.6 [(-3.4)-1.3]	-1.2 [(-3.0)-(-0.4)]	0.845

Conclusions

In conclusion, metformin XR and IR forms have similar efficacy on weight loss when used in patients with diabetes or prediabetes and on glycemic control in diabetic patients. Both forms are effective, well tolerated and similar in terms of gastrointestinal side effects.

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