

ESTIMATION OF THE FREQUENCY OF NIGHTTIME HYPOGLYCEMIC REACTION CASES IN DIABETES MELLITUS OF THE TYPE 1

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OBJECTIVES

To estimate the frequency of nighttime hypoglycemic reaction cases in daily monitoring of the glucose in interstitial fluid under the conditions of DM 1.

METHODS

The study of daily glucose dynamics was conducted with the use of the continuous glucose monitoring system made by the company Medtronic MINIMED, USA. The study included 113 patients with DM 1. Patients were divided into 2 groups: group 1 with nighttime hypoglycemic reaction cases (n=50), and group 2 without nighttime hypoglycemic reaction cases (n=63).

Clinical and laboratory characteristics of examined patients, Me [25; 75]

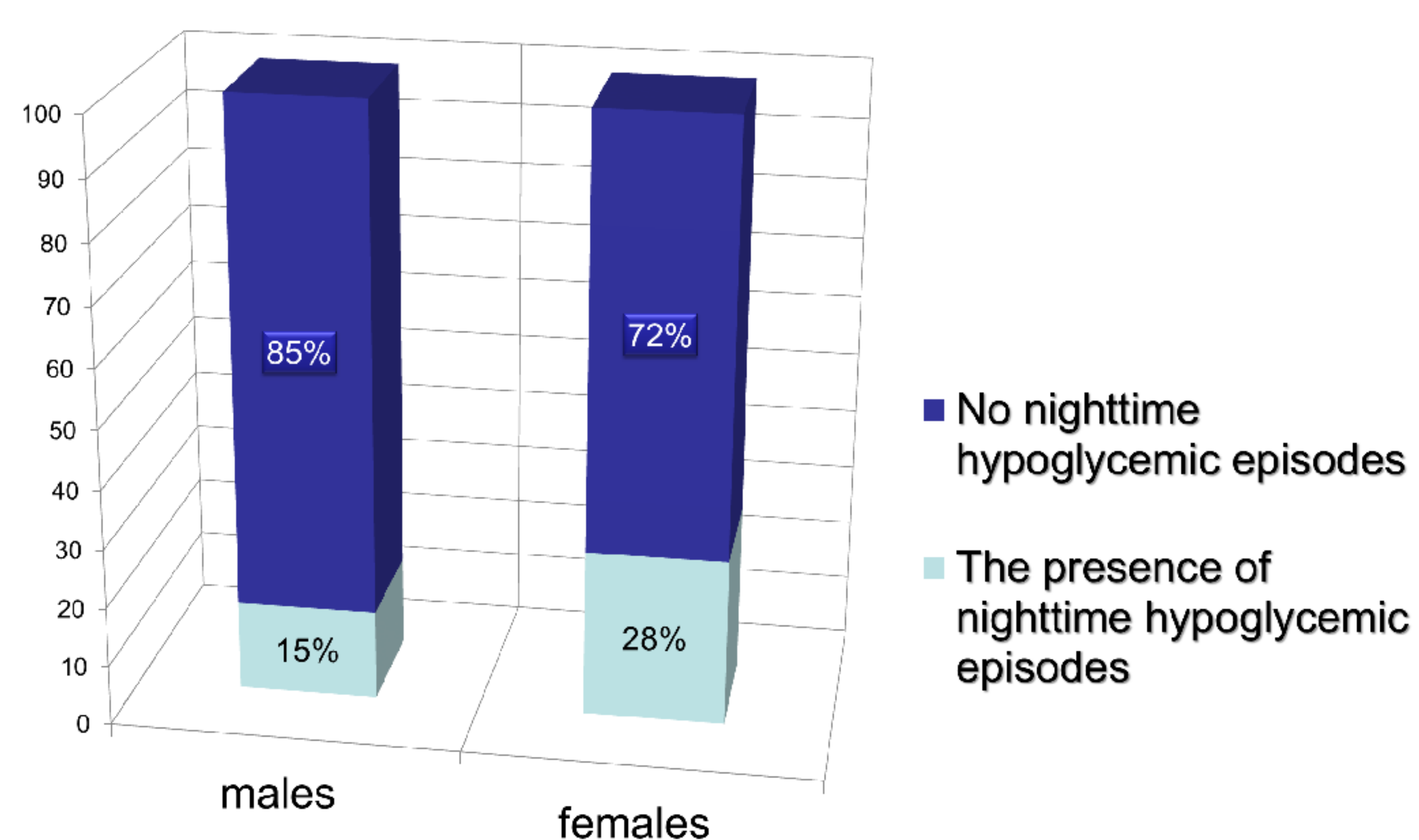
	1 st group(n=50)	2 nd group (n=63)	p
Age, years	29,49 [24,05;36,18]	27,83 [21,13;34,94]	0,346
Duration of DM 1, years	9,07 [4,23;13,53]	7,18 [2,78;13,62]	0,302
HbA _{1c} , %	8,20 [7,30;9,40]	9,70 [8,40;11,20]	<0,001
Body mass index, kg/m ²	23,66 [21,97;25,82]	23,42 [21,45;27,34]	0,930
Day dose of insulin, IU/day	0,72 [0,60;0,87]	0,72 [0,56;0,98]	0,476

RESULTS

The age of the patients in the group 1 was 29,49 [24,05; 36,18] years, in the group 2 it was 27,83 [21,13; 34,94] years (p>0,05). The period of the DM 1 in the group 1 was 9,07 [4,23; 13,53], in the group 2 it was 7,18 [2,78; 13,62] years (p>0,05). The level of HbA_{1c} in the group 1 was 8,20 [7,30; 9,40] %, in the group 2 it was 9,70 [8,40; 11,20] %, (p<0,001). BMI in the group 1 was 23,66 [21,97; 25,82] kg/m², in the group 2 it was 23,42 [21,45; 27,34] kg/m² (p>0,05). The daily dose of insulin in the group 1 was 0,72 [0,60; 0,87] IU/kg, in the group 2 it was 0,72 [0,56; 0,98] IU/kg (p>0,05). The frequency of night hypoglycemic reaction cases in the group 1 was 15% in males and 28% in females (p>0,05).

In the group 1 the level of glucose in interstitial fluid 1 hour before the dinner was 8,30 [5,70; 10,00] mmol/l, it was 10,75 [8,45; 14,25] mmol/l in the group 2. In 3 hours after the dinner the level of glucose in interstitial fluid in group 1 was 8,05 [5,80; 9,90] mmol/l, it was 10,90 [8,60; 13,70] mmol/l (p<0,001) in the group 2. Between 23:00 and 03:00 the level of glucose in interstitial fluid in the group 1 was 7,80 [5,50; 10,60] mmol/l, it was 10,50 [8,80; 13,40] mmol/l, (p<0,001) in the group 2. Between 03:00 and 06:00 the level of glucose in interstitial fluid in group 1 was 8,20 [6,10; 11,10] mmol/l, it was 10,80 [8,70; 13,30] mmol/l (p<0,001) in the group 2.

The frequency of night hypoglycemic reaction cases in the group 1 according to gender



CONCLUSIONS

- The frequency of nighttime hypoglycemic reaction cases doesn't depend on sex, age, period of DM 1, daily dose of injected insulin.
- The risk of night hypoglycemic reactions is higher in patients with the lower risk index of hypoglycemia that coincides with the minimum value of glycaemia at night and glycosylated hemoglobin.

