

RATE OF IMPAIRED GLUCOSE REGULATION IN OUTPATIENT CARE

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INTRODUCTION:

Increasing incidence of type 2 diabetes remains unsolved public health problem all over the world [1]. Insufficient diabetes control and long term complications threaten health and quality of life of suffered persons and have impact on global economies [2]. Many of individuals with type 2 diabetes remain unidentified for many years because of its silent course [3]. Rate of undiagnosed diabetes varies in different regions reaching up to 83.8% in the Pacific Islands [4]. Screening for diabetes within general practice by measuring fasting blood glucose or performing oral glucose tolerance test is the main measure of diabetes secondary prevention. The individuals with multiple risk factors for diabetes should be targeted for these measures [3, 5–8].

OBJECTIVE:

The objective was to assess the rate of impaired glucose regulation and progression to diabetes in adults using routinely collected health care data.

MATERIAL AND METHODS:

We conducted an audit on results of 75-g standardized oral glucose tolerance test (OGTT) performed at Vilnius city Antakalnio outpatient clinic from 03 Jan 2011 to 15 Dec 2014 and analysed data of 5933 adult patients, who were at risk for development of diabetes. All anonymous data were obtained from electronic records of routine clinical care. We excluded from analysis data of 358 patients who didn't perform a 2 hours post load plasma glucose concentration (2hPG) test. 5575 patients' data were included into the final analysis. We applied the 2006 World Health Organization criteria for diabetes, impaired glucose tolerance (IGT) and impaired fasting glucose (IFG) [9].

We used SPSS version 20.0 for statistical analyses. The Shapiro–Wilk test was used to examine for normal distribution. Student's t-test and ANOVA was used to compare the means for independent samples. A p value of <0.05 was considered as significant.

RESULTS:

Mean patients' age was 53.64±15.59 years. The youngest patient was 18 years old and the oldest was 93.

36.4% of the patients were men and 63.6% were women. Mean fasting plasma glucose (FPG) concentration was

5.87±0.65 mmol/l, mean 2 hours post load plasma glucose (2hPG) concentration was 6.20±2.25 mmol/l. FPG in women was significantly lower than in men, but 2hPG was significantly higher in women than in men (Table 1).

Table 1. Patients' characteristics

Variable	Study population, N=5575	Men, N=2028	Women, N=3547	p, comparing men and women
Age, years	53.64±15.59	52.98±14.57	54.01±16.14	0.014
Fasting plasma glucose, mmol/l	5.87±0.65	6.03±0.60	5.79±0.67	<0.0001
2 hours post load plasma glucose, mmol/l	6.20±2.25	6.09±2.44	6.25±2.14	0.011

We found that the mean 2hPG concentration increased with age, but the FPG concentration remained unchanged starting from 40–49 years (Fig. 1).

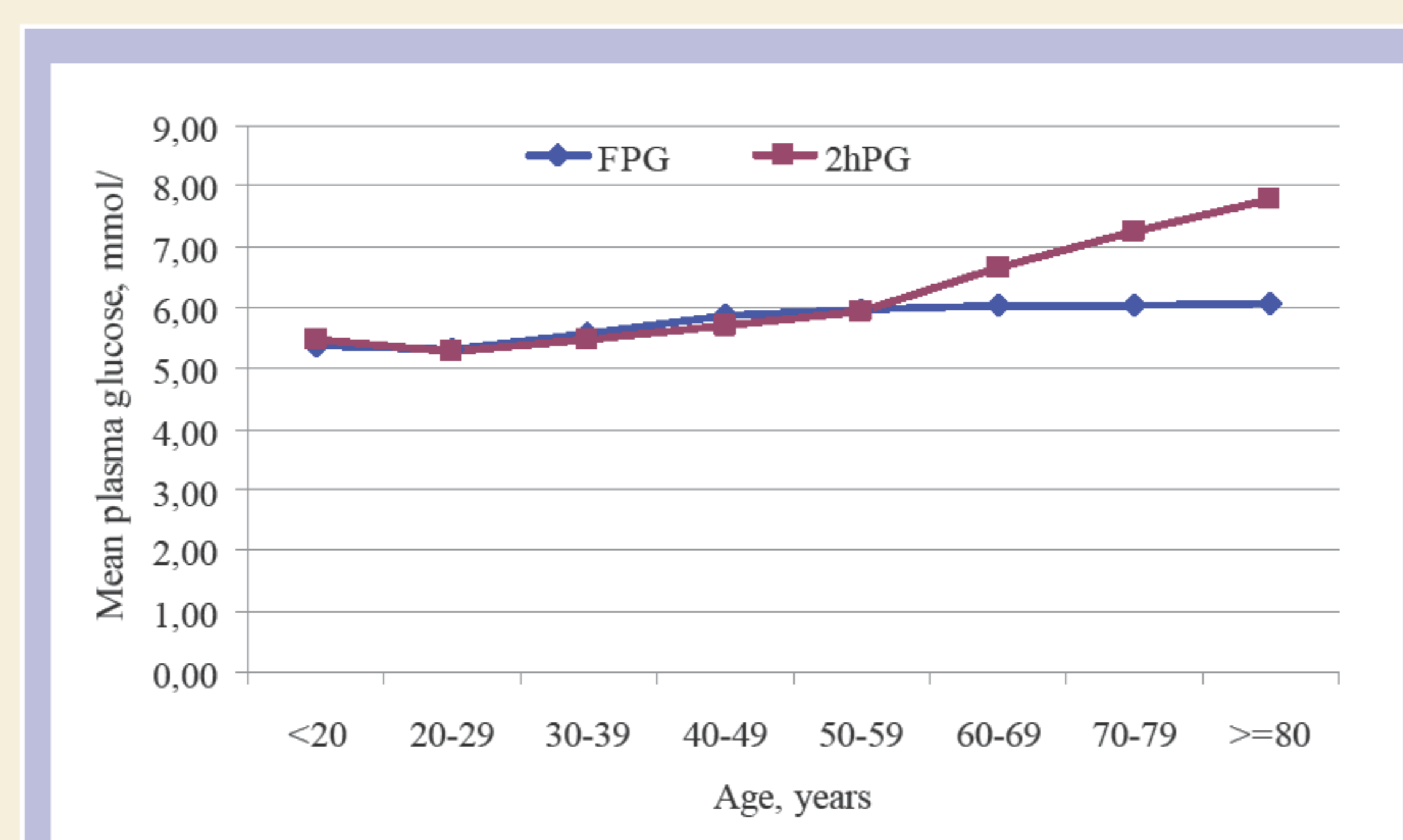


Fig. 1. Mean fasting plasma glucose and 2 hours post load plasma glucose in different age groups.

The rate of IGT steadily increased with age. The rate of diabetes dropped in group aged 20–29 years comparing with younger group, but starting from the group of age of 30–39 years diabetes rate steadily increased. IFG increased with age achieving peak in groups of 50–59 years and 60–69 years old patients (Fig. 3).

787 patients repeated OGTT second time, which revealed 48 new cases of diabetes. Before developing diabetes 58.3% patients had IGT, 22.9% had IFG, and 18.8% had normal glucose tolerance. Mean time from the first OGTT to diabetes development was 18.15±9.36 months. Female gender (OR=2.42, p=0.028) and IGT (OR=6.08, p<0.001) predicted diabetes.

CONCLUSION

This analysis revealed that the rate of undiagnosed diabetes is 5.1%; nearly half of outpatient patients with risk factors for diabetes have impaired glucose regulation. Women with history of impaired glucose tolerance have higher risk for diabetes development.

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By OGTT undiagnosed diabetes was detected in 286 (5.1%) patients. 778 (14.0%) patients met WHO criteria for IGT and 1518 (27.2%) for IFG. Normal glucose tolerance was found in 2993 patients (Fig. 2).

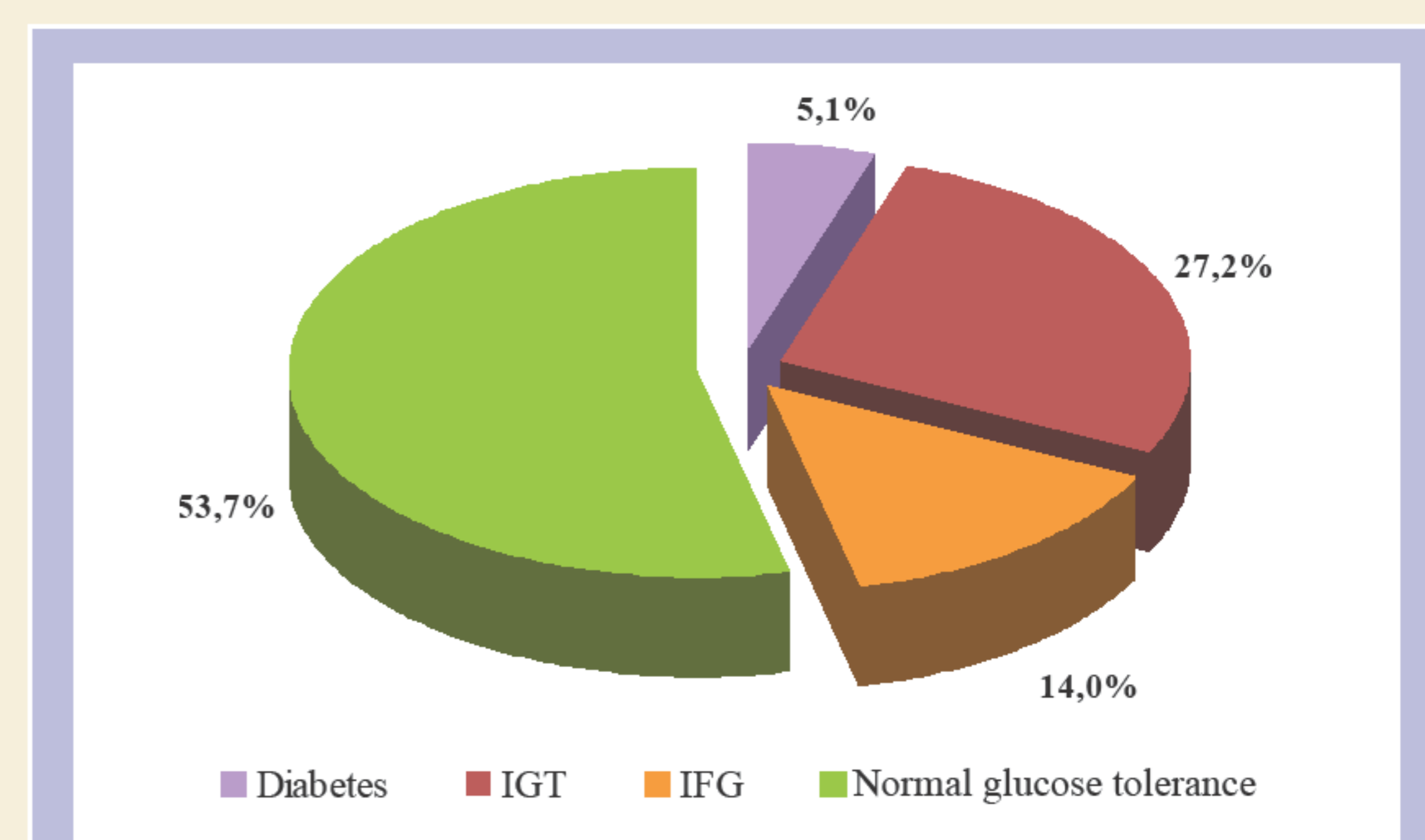


Fig. 2. Rate of impaired glucose regulation.

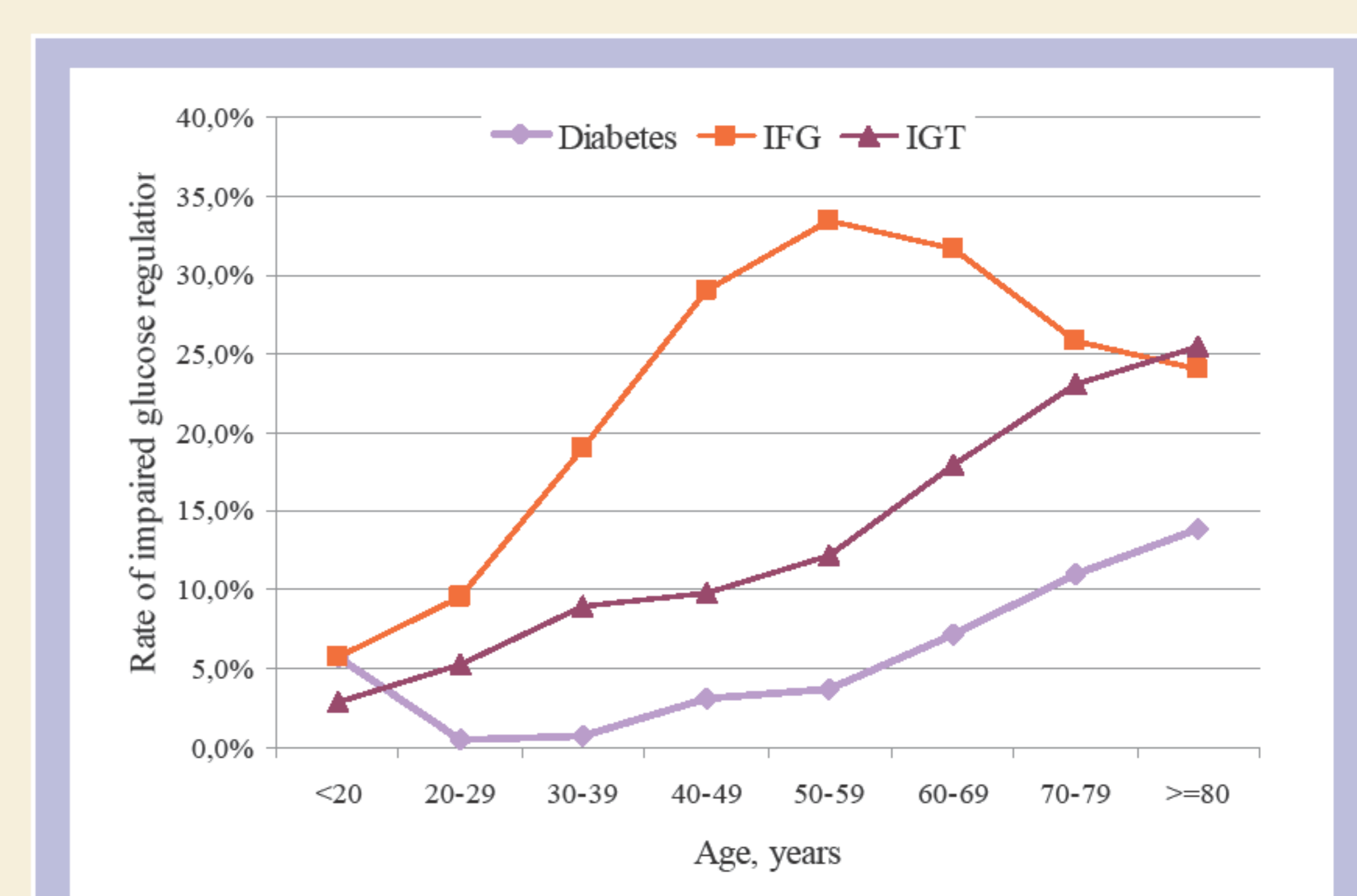


Fig. 3. Rate of diabetes, IFG and IGT in different age groups.

