MORTALITY AND INCIDENCE OF DIABETES:
retrospective cohort of hospitalized patients with stress hyperglycemia

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AIMS

To estimate and compare incidence of diabetes and mortality in hospitalized patients with stress hyperglycemia (SH) versus normoglycemia (NG), on follow-up after discharge.

METHODS

A retrospective cohort was conducted with consecutive adults non-diabetic inpatients admitted from 2014 to 2015 in an argentine university hospital. We included patients with SH (>=140mg/dl and HbA1c<6.5%) or NG (all glycemias values <140mg/dl) during hospitalization. Patients were followed up from discharge to the occurrence of diabetes, death, lost (disaffiliation) or administrative censored data. Diabetes was defined with at least one of the following criteria (the first date): new problem in ambulatory medical record, or new insulin/hypoglycaemic consumption from pharmacy registry, or HbA1c>=6.5%.
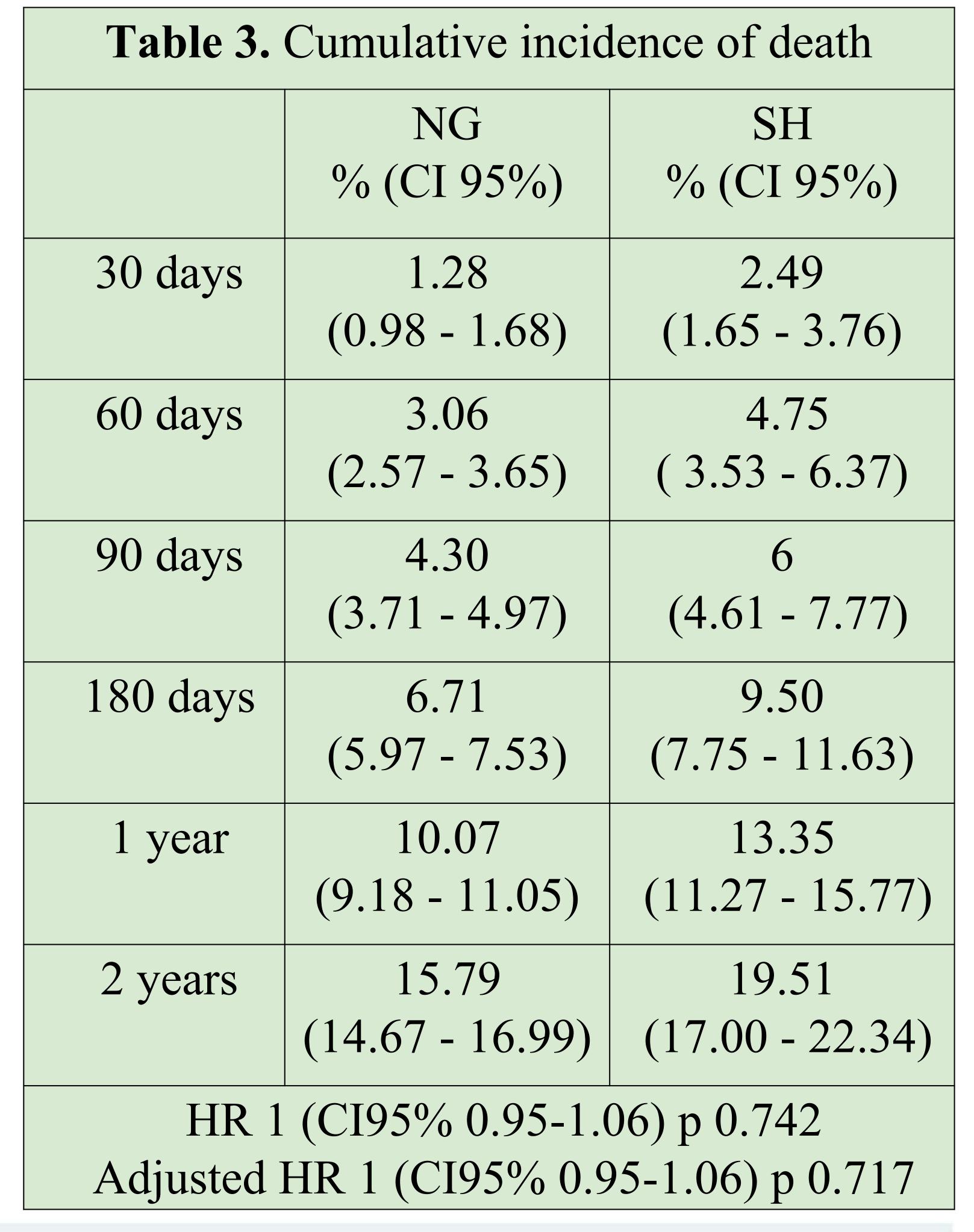
We calculated frequencies of new diagnosis of diabetes and mortality. Incidence rates are reported as crude cumulative incidence at different moments, with their respective 95% confidence intervals (CI95%). Kaplan Meier curves for both groups were performed and compared with log rank test. We used a Cox proportional hazard model to calculate hazard ratios (HR) and CI95%. Additionally we estimated Sub Hazard Ratio of diabetes considering mortality as a competing risk .
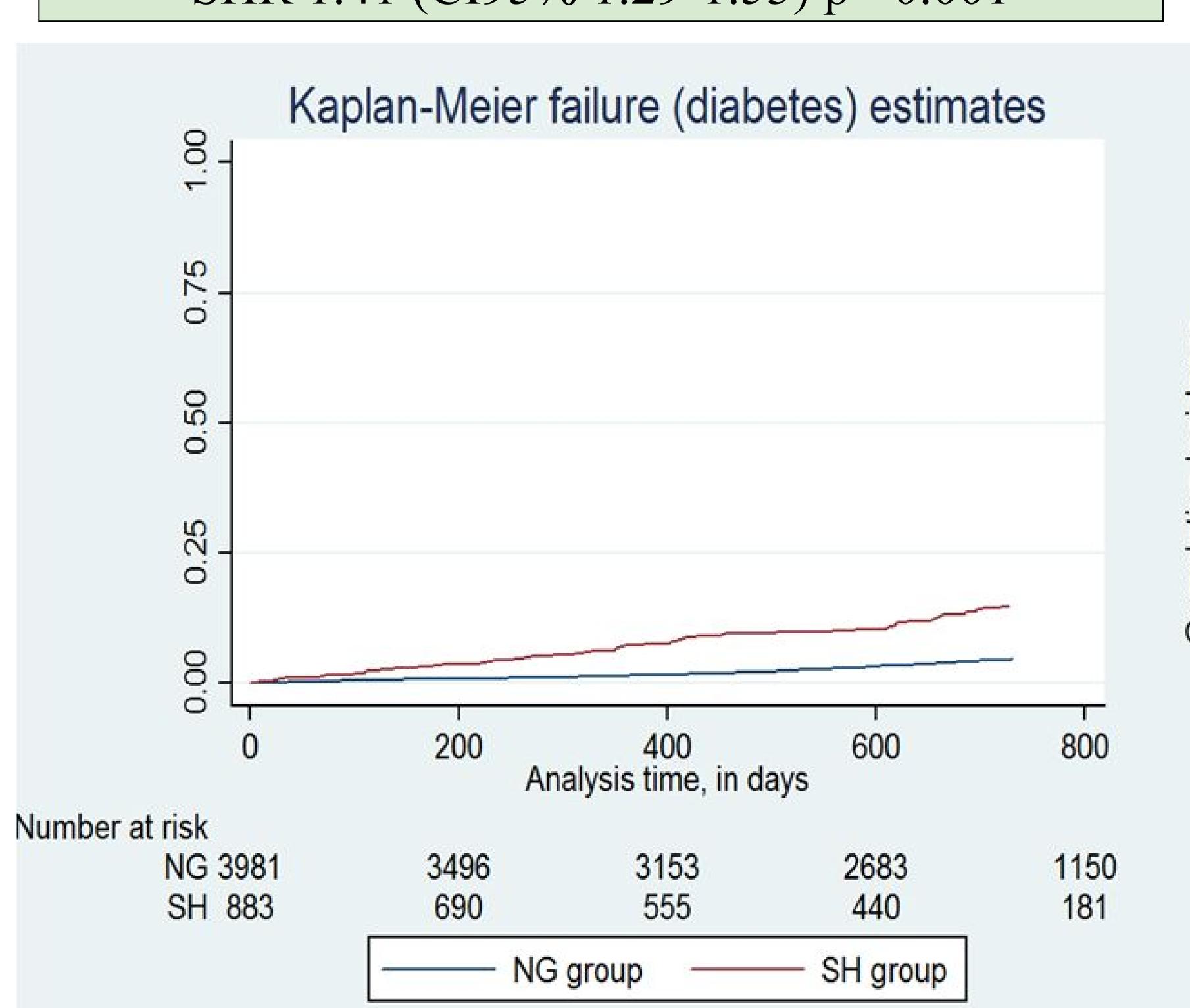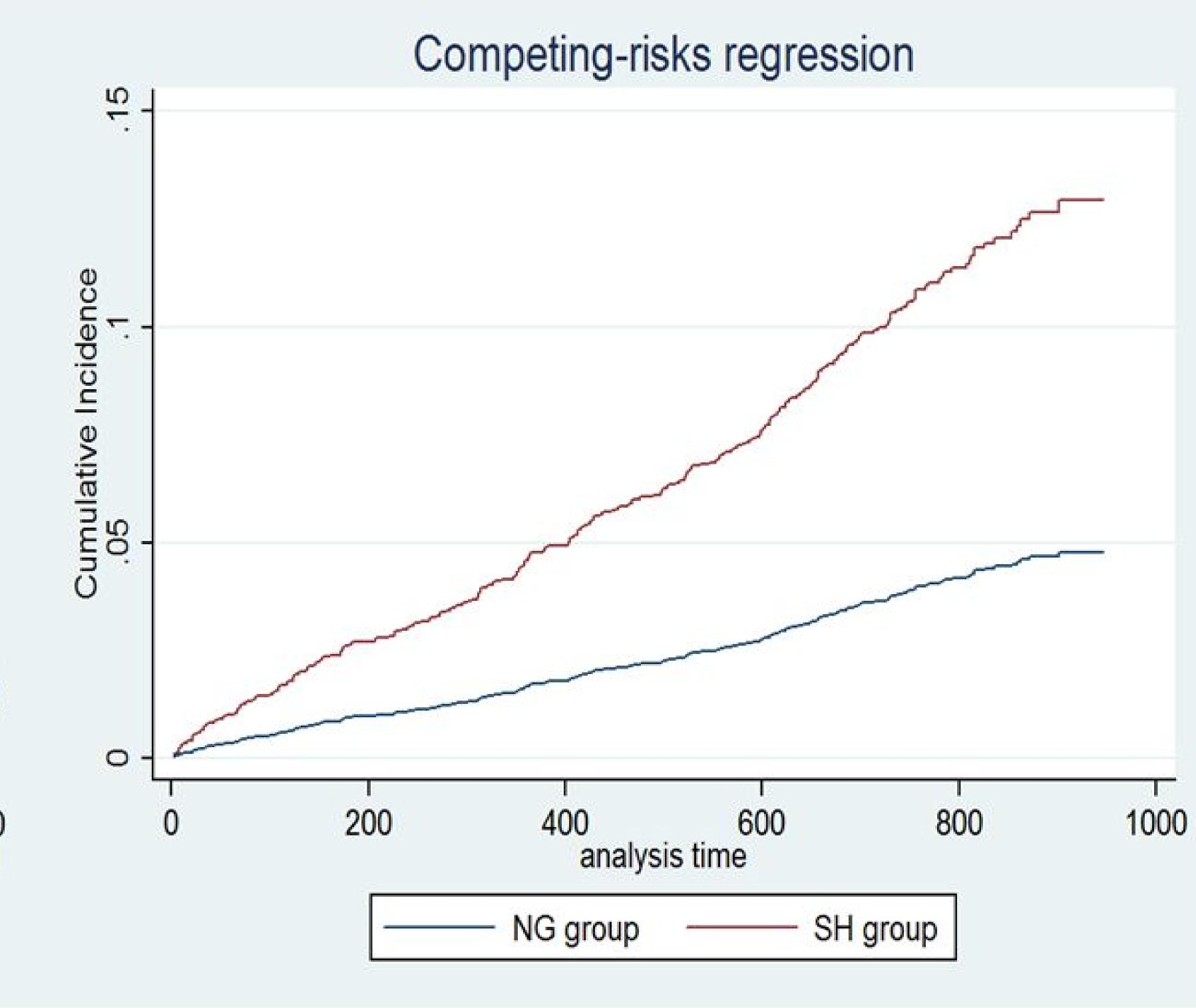
RESULTS

We identified 3981 patients with NG and 884 with SH. During the observation period, there were 255 cases of diabetes and 831 deaths. The median observation period was 1.83 years. The baseline characteristics are shown in **Table 1**.

Table 1. Characteristics of patients			
	HE (n 884)	**NG (n 3981)**	p
Female	58.03% (513)	61.32% (2441)	0.07
Age, years *	78 (69 - 85)	73 (57 - 83)	0.00
Unscheduled admission	54.19% (479)	58.63% (2334)	0.01
Hospital stay, days *	6 (3.45 - 10.45)	3.4 (1.8 - 6)	0.00
* median (percentile 25- percentile 75)			

Table 2. Cumulative incidence of diabetes		
	NG % (CI 95%)	SH % (CI 95%)
30 days	0.20 (0.10 - 0.40)	0.92 (0.46 - 1.82)
60 days	0.30 (0.19 - 0.57)	1.27 (0.71 - 2.29)
90 days	0.49 (0.31 - 0.77)	1.77 (1.07 - 2.92)
180 days	0.88 (0.62 - 1.23)	3.61 (2.52 - 5.16)
1 year	1.59 (1.23 - 2.06)	7.39 (5.70 - 9.56)
2 years	4.74 (4.02 - 5.60)	14.84 (12.10 - 18.12)
HR 1.33 (CI95% 1.13-1.73) p 0.025 Adjusted HR 1.38 (CI95% 1.06-1.78) p 0.014 SHR 1.41 (CI95% 1.29-1.53) p< 0.001		

Table 3. Cumulative incidence of death		
	NG % (CI 95%)	SH % (CI 95%)
30 days	1.28 (0.98 - 1.68)	2.49 (1.65 - 3.76)
60 days	3.06 (2.57 - 3.65)	4.75 (3.53 - 6.37)
90 days	4.30 (3.71 - 4.97)	6 (4.61 - 7.77)
180 days	6.71 (5.97 - 7.53)	9.50 (7.75 - 11.63)
1 year	10.07 (9.18 - 11.05)	13.35 (11.27 - 15.77)
2 years	15.79 (14.67 - 16.99)	19.51 (17.00 - 22.34)
HR 1 (CI95% 0.95-1.06) p 0.742 Adjusted HR 1 (CI95% 0.95-1.06) p 0.717		

Kaplan-Meier failure (diabetes) estimates

Number at risk
NG 3981 — 3496 — 3153 — 2683 — 1150
SH 883 — 690 — 555 — 440 — 181

Competing-risks regression

CONCLUSIONS: SH is a risk factor for developing diabetes.
There were no differences in mortality on follow-up, but it seems to be a competitive event for presenting new diabetes in this population.
This information can help decision making, and useful to determine post-discharge strategies.