

MORTALITY IN PATIENTS WITH INCIDENTALLY DISCOVERED ADRENAL ADENOMAS: THE EXPERIENCE OF SAN LUIGI HOSPITAL

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Objectives:

Adrenal incidentalomas are found in 3–7% of radiological series and many of them are adrenal adenomas. Autonomous cortisol secretion is a common finding in these patients. Studies reported metabolic derangement and increased cardiovascular risk associated with this endocrine disorder, however scanty data are available on the natural history of this condition.

Aim of the Study:

1) To evaluate cardiovascular events in patients with incidentally discovered adrenal adenoma (AI); 2) To evaluate the overall mortality and cardiovascular mortality in AI; 3) to evaluate the outcome of surgical treatment on mortality and cardiovascular risk factors

Methods:

We studied 142 patients with AI from 1998 and 2012 with a follow-up of at least 24 months. Patients with pheochromocytoma and primary aldosteronism were excluded. Metabolic and hormonal parameters were determined. We collected the following data: blood pressure, plasma glucose, lipid profile, cortisol levels after 1 mg dexamethasone suppression test (1 mg-DST), plasma ACTH and urinary free cortisol. Major vascular events (stroke, myocardial infarction) were registered at diagnosis and during follow-up. Mortality data were obtained from the demographic registers. Causes of death were compared to the Piedmont and National registry.

The definition of Subclinical Cushing Syndrome (SCS) was based on cortisol levels after 1 mg DST: <1.8 mcg/dl (group 0, non-secreting AI), ≥ 1.8 and ≤ 5 mcg/dl (group 1), > 5 mcg/dl (group 2).

Results:

Median age was 61 yrs, with a median follow-up of 72 months. Sixteen (11.3%) patients died: 5 (31.2%) for cancer, 8 (50.0%) for cardiovascular and 3 (18.8%) for respiratory/infective causes. Twenty-two patients underwent adrenalectomy and none of them died during follow-up. Nine patients had history of CV events at diagnosis and 18 patients had new CV events during follow-up. Patients who underwent surgery had higher cortisol levels after 1 mg-DST than non-operated patients (p=0.026). During follow-up, in the non-operated patients we have observed a significant increase of the CV events (8% vs 24%, p=0.001) and the prevalence of new CV events was higher than in operated patients (15% vs 0%, p=0.05). Survival probability was reduced in group 2 (HR 4.24 – IC 95% 1.09-16.5) also after having excluded the patients who underwent surgery (HR 3.89 – IC 95% 1.0-15.14) (Fig. 1-2). None of the operated patients died (Fig. 3). Mortality for CV events or sepsis was higher than expected in the general population (Fig. 4).

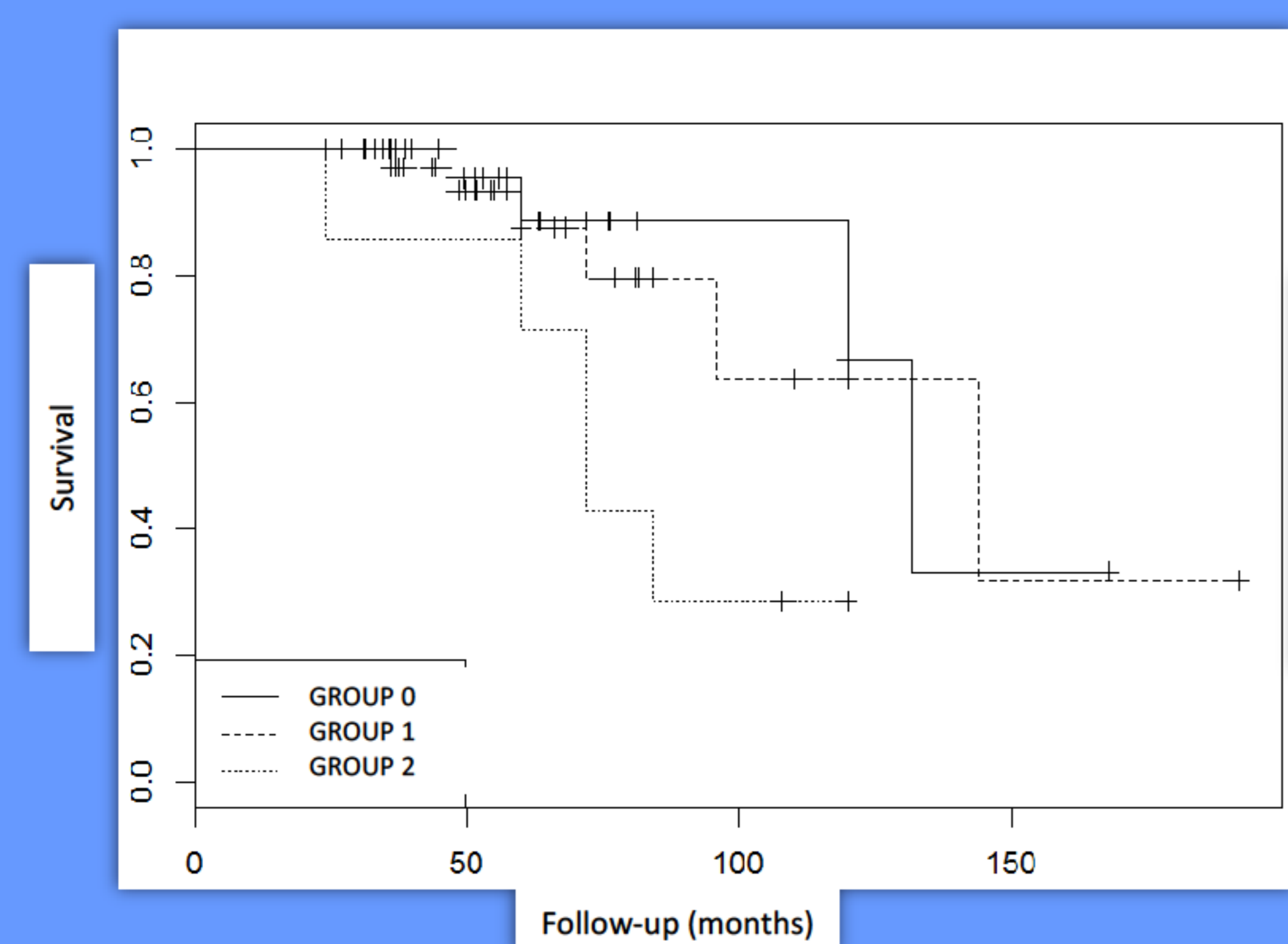


Figure 1: Survival probability, 1 mg DST <1.8 (group 0), 1.8-5 (group 1) and >5 mcg/dl (group 2)

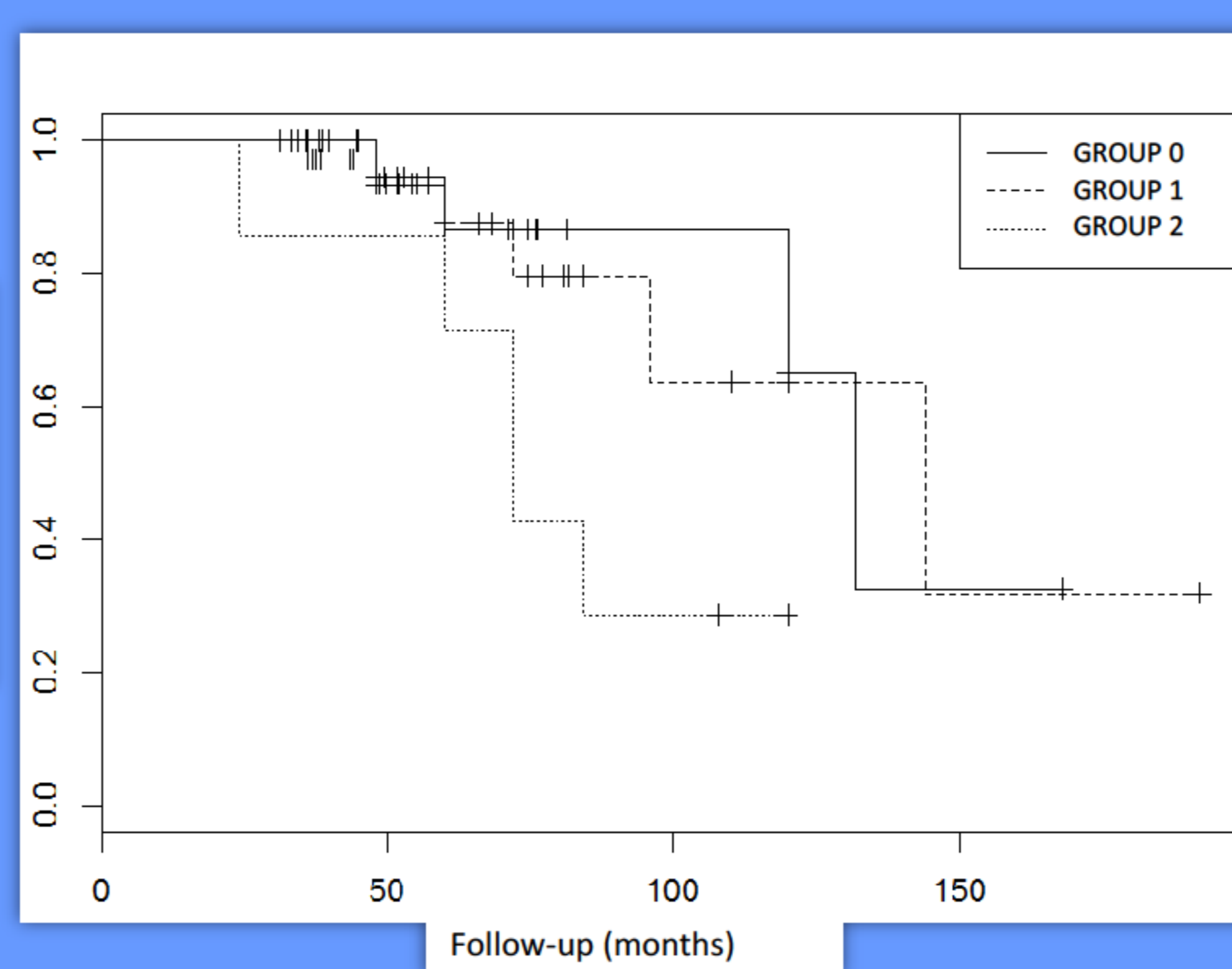


Figure 2: Survival probability after exclusion of the operated patients, 1 mg DST <1.8 (group 0), 1.8-5 (group 1) and >5 mcg/dl (group 2)

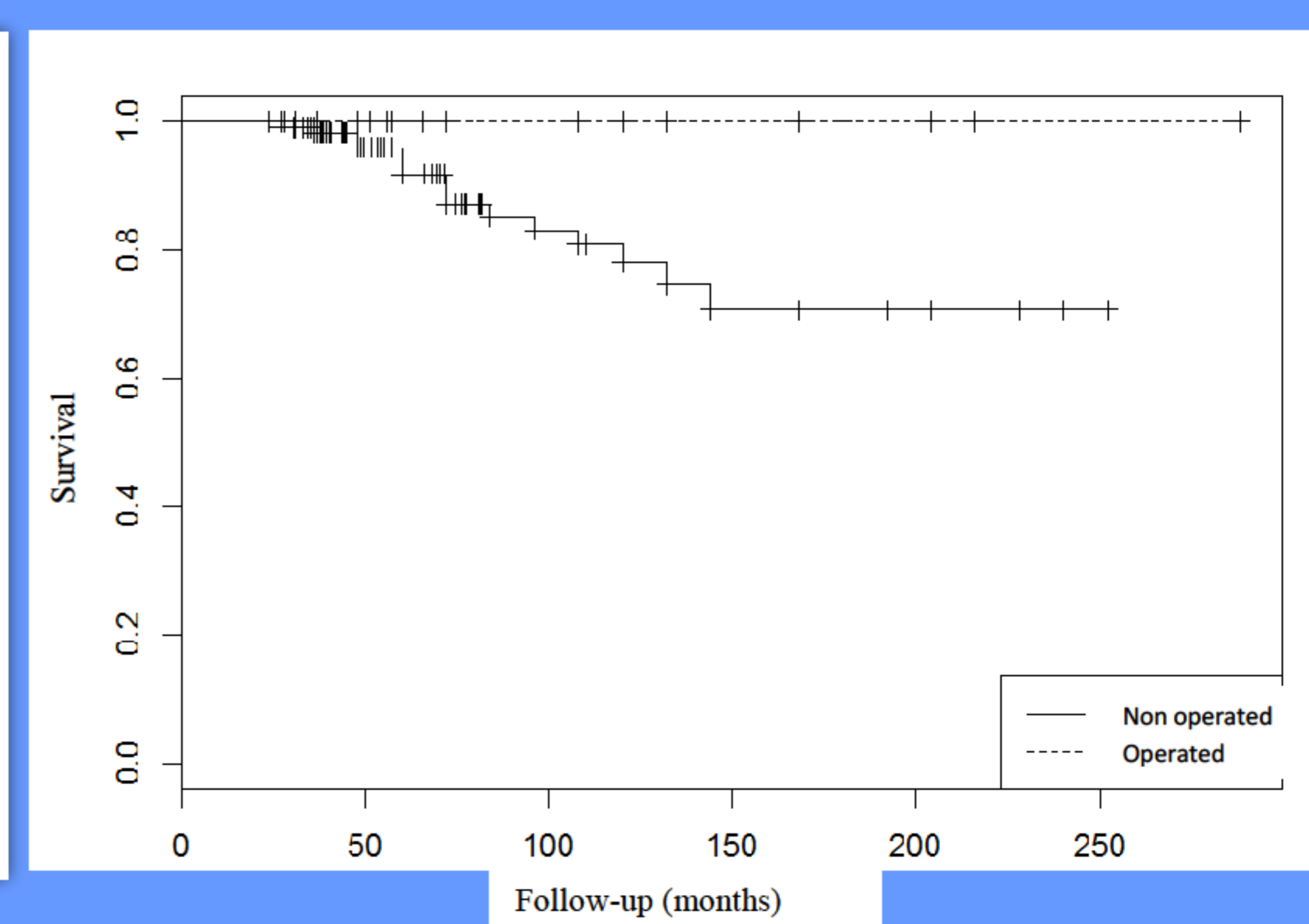


Figure 3: Survival probability between operated and non-operated patients

Conclusions:

- ✓ We have observed an increased mortality in patients with SCS than in patients with non-secreting adrenal adenoma (difference at the limit of statistical significance).
- ✓ Survival probability was higher in patients who underwent surgery.
- ✓ Since the patients who underwent surgery had higher cortisol levels after 1 mg DST, surgery may have prolonged survival reducing exposure to cortisol excess.
- ✓ We found that the prevailing causes of death were CV events and sepsis, whose frequency was higher than in the general population.
- ✓ Excess mortality should be related to the chronic albeit slight cortisol excess. However, present data cannot demonstrate a causal relationship.

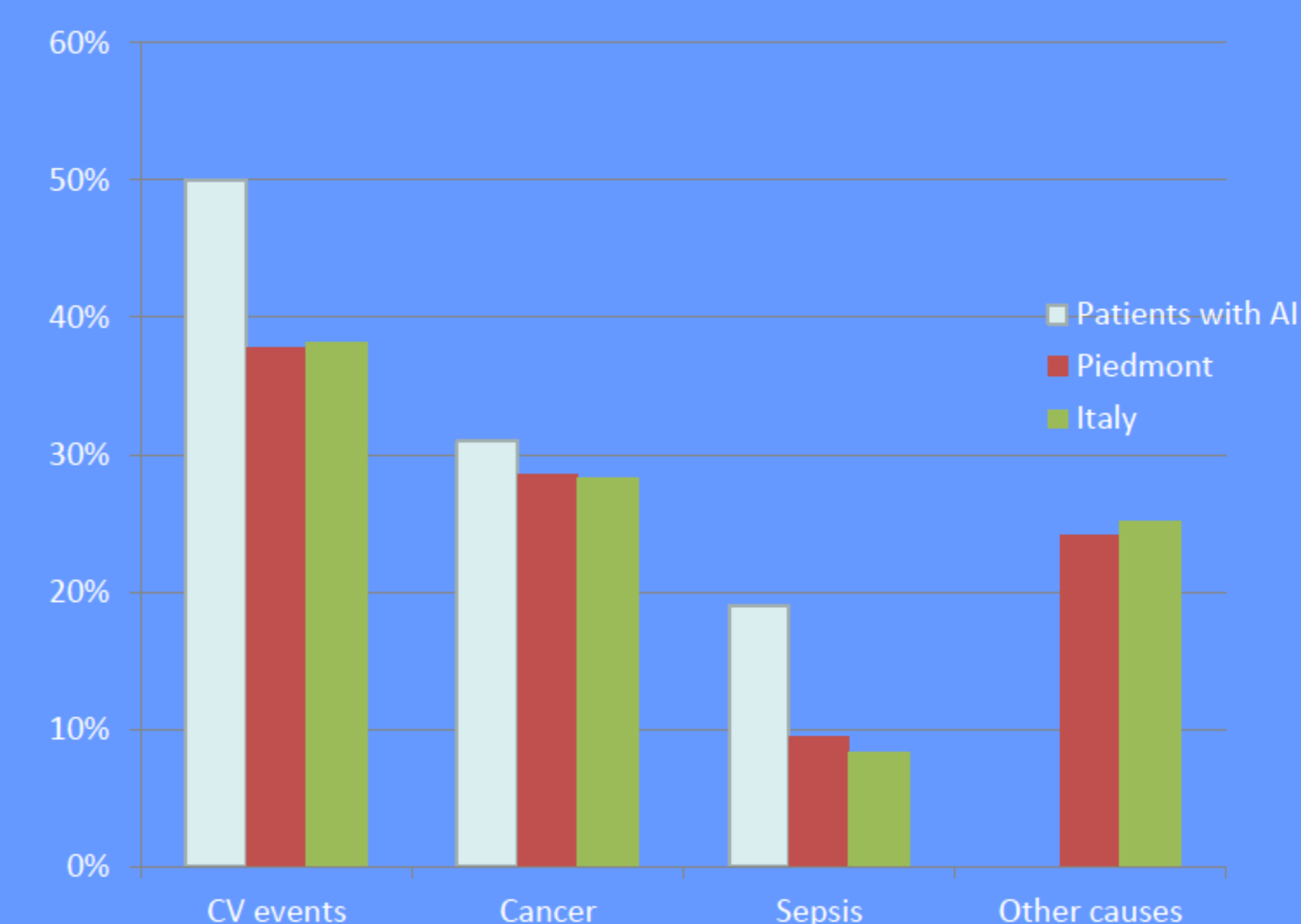


Figure 4: Causes of death in AI patients compared with the general population

