Diabetes and Hyperglycemia

RELATION WITH CLINICAL OUTCOME IN THE COMMUNITY ACQUIRED PNEUMONIA

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1. Background

Diabetes Mellitus (DM) is associated with an increased risk and severity of infections.

In Portugal (2011) respiratory diseases were the second leading cause of hospitalization in diabetic patients.

However, it is not clear if DM and glucose levels on admission are prognostic factors in patients with Community Acquired Pneumonia (CAP)

2. Aims

In patients with **CAP**, to examine the association between:

1. DM and glucose levels on admission with pneumonia complications, length of hospital stay and mortality
2. Glycemic control and pneumonia complications in diabetic patients

3. Methods

Observational, analytical and retrospective study of adult patients with CAP admitted to Hospital of Braga between the 1st October 2011 and the 31st March 2012

EXCLUSION CRITERIA:

- Immunocompromised patients
- Nosocomial pneumonia

Electronic clinical data were analyzed and telephone calls were done

STATISTICAL ANALYSIS

IBM® SPSS® Statistics v. 20.0

The chi-square, Mann-Whitney, Kruskal-Wallis tests and logistic regression

$p < 0,05$ → Statistically significant

4. Results

Of the 440 included patients, 51.1% were women, 83.1% elderly and 29.3% had a prior diagnosis of DM. Of these, 48.8% had HbA1c measured (less than 7% in 52,4%).

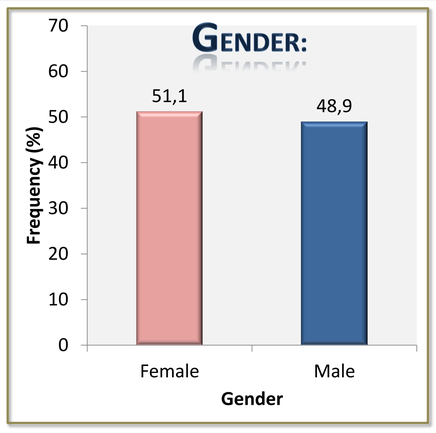

Fig. 1 Distribution of population by gender.

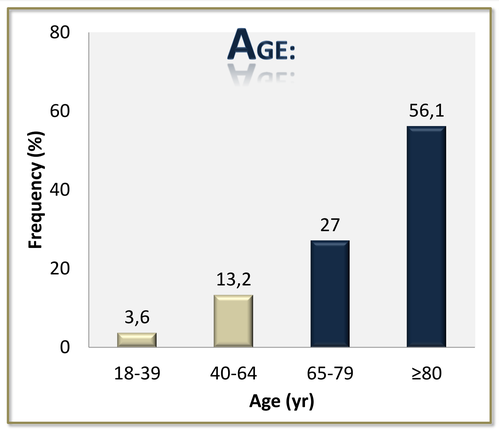

Fig. 2 Distribution of population by age.

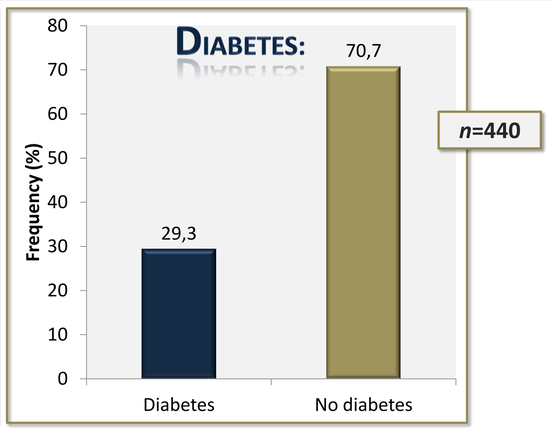

Fig. 3 Distribution of population by previous diagnosis of DM.

Diabetic patients were older (p=0.002), had higher severity of pneumonia assessed by CRB-65 (p=0.025), more complications (p=0.001) and a longer hospital stay (p=0.026).
There was no association between DM and mortality.

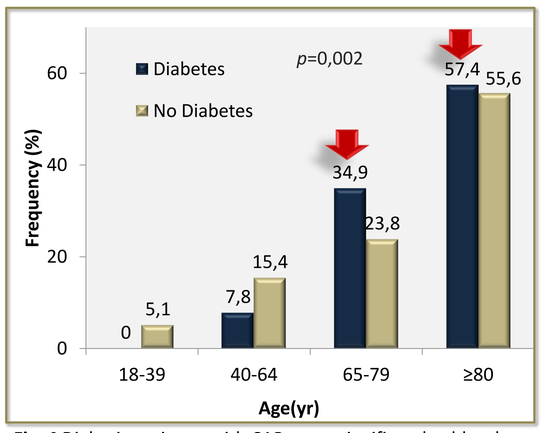

Fig. 4 Diabetic patients with CAP were significantly older than non diabetic patients.

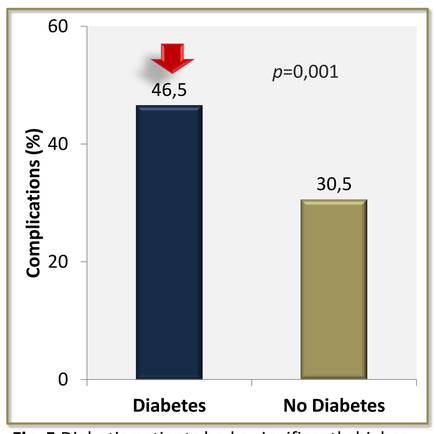

Fig. 5 Diabetic patients had a significantly higher complication rate than non diabetic patients (46,5% vs 30,5%).

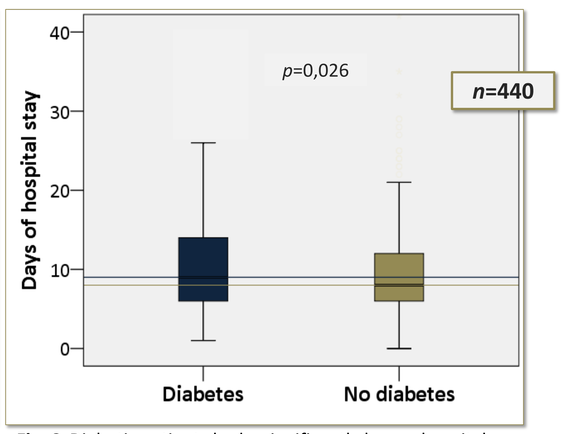

Fig. 6 Diabetic patients had a significantly longer hospital stay (Md 9 days; P25: 6; P75:14), than non diabetic patients (Md 8 days; P25:6; P75:12).

It was observed a trend towards complications in patients with hyperglycemia and a gradual increase in the length of stay for higher glucose levels on admission (p=0.016).
It was not found statistically significant association between glucose levels and mortality, neither between HbA1c levels and complications, length of stay and mortality.

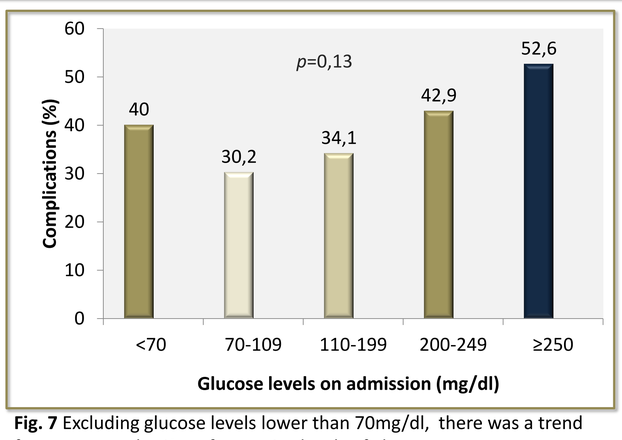

Fig. 7 Excluding glucose levels lower than 70mg/dl, there was a trend for more complications for greater levels of glucose.

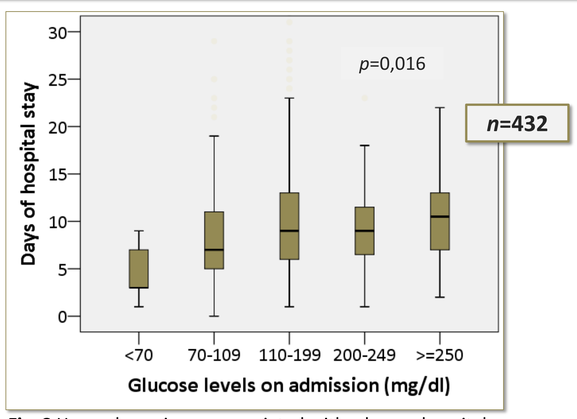

Fig. 8 Hyperglycemia was associated with a longer hospital stay.

After accounting for socio-demographic and clinical confounders, DM proved to be a predictor of complications (*Odds Ratio* 1,839; 95% CI: 1,173-2,884; p=0.008).

5. Conclusion

This study, carried out at a central Portuguese hospital, proved that pre-existing diabetes and hyperglycemia at hospital admission are associated with a poor clinical outcome in patients with CAP. Diabetes was an independent predictor for complications and both diabetes and hyperglycemia were associated with a longer hospital stay. Therefore, the early recognition of these patients is crucial to intensify care, prevent complications and improve clinical outcome.
Further studies are needed to clarify associations not found in this study, especially between HbA1c levels and clinical outcome and between DM and mortality.

References

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