Background

- Thrombocytopenia is a well recognized adverse effect of linezolid, however the incidence ranges from 15-50% in the literature.
- Hypoglycemia is not a widely known adverse effect of linezolid and is not routinely monitored for.
- There is increasing evidence to support the relationship between linezolid and hypoglycemia, including case reports and reports in the FDA Adverse Event Reporting System.
- There is no consensus on the real-life incidence of linezolid-induced thrombocytopenia and hypoglycemia.
- The safety concerns of these adverse effects warranted further exploration into incidence and associated risk factors.

Objectives

- To quantify the real-life incidence of thrombocytopenia and hypoglycemia in patients receiving linezolid (LZD) for a minimum of 5 days, and to evaluate potential associated risk factors for these adverse effects.

Methods

- Study Design: Retrospective chart review
- Exclusion criteria: Hematological disorder causing decreased platelets (PLT). PLT < 100 x 10^9 cells/L at LZD initiation, chemotherapy within 2 weeks, diagnosis of disseminated intravascular coagulopathy, hemorrhage not caused by thrombocytopenia requiring blood transfusion, insulin-dependent DM, on sulfonilureas or meglitinides, acute liver failure, adrenal insufficiency, endogenous hyperinsulinism.
- Primary Endpoints:
  o Incidence of thrombocytopenia & hypoglycemia
- Secondary Endpoints:
  o Risk factors associated with linezolid-induced thrombocytopenia or hypoglycemia
- Statistical Analysis: Chi Squared and Student’s T-test

Results

- 102 patients (38 females; mean age 50 ± 21) were included
- Mean duration of LZD = 14 ± 10 days
- Primary Endpoints:
  o Incidence of Thrombocytopenia = 17.6% (18/102)
  o Incidence of Hypoglycemia = 0% (0/102)
- Secondary Endpoints:
  o Risk factors for thrombocytopenia: duration of LZD treatment, renal impairment, renal replacement therapy, concurrent UFH
  o Risk factors for hypoglycemia: not assessed
  o PLT declined from baseline in 76% (64/84) of non-thrombocytopenic patients

Variables

- Time to first thrombocytopenic PLT value: 16 ± 12 days
- Time to most aberrant PLT value: 21 ± 15 days
- Time to first normal PLT value after LZD stopped: 6 ± 5 days in 9 patients (data unavailable for 9 patients)
- TP within 14 days of starting LZD: 9/18 (50)
- LZD discontinued due to TP: 11/18 (61)
- PLT transfusion: 1/18 (6)

Limitations

- Small sample size
- Many patients were on LMWH or UFH
- Data on all risk factors not available for all patients
- Blood glucose measurements were not readily available to assess hypoglycemia
- Did not measure serum linezolid concentrations

Conclusions

- The real-life incidence of thrombocytopenia in patients receiving linezolid for a minimum of 5 days was 17.6%
- There were no cases of hypoglycemia, suggesting a low real-life incidence of this adverse effect
- Clinicians should monitor patients for linezolid-induced thrombocytopenia, especially in those with renal impairment or longer treatment durations.