

Safety of ondansetron loading dose in children with cancer

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Introduction

In highly emetogenic chemotherapy, the recommended dose of the serotonin-receptor antagonist ondansetron (5 mg/m² q8h) may be insufficient to prevent chemotherapy-induced nausea and vomiting. In adults, ondansetron loading doses (OLD) of 32 mg are known to be safe. We aimed to evaluate the safety of an OLD of 16 mg/m² (top, 24 mg) i.v., followed by 5 mg/m² (top, 8mg) q8h in infants, children and adolescents.

Conclusions

Ondansetron loading doses of 16 mg/m² (top, 24 mg) i.v., followed by 5 mg/m² (top, 8mg) q8h, to prevent nausea and vomiting due to highly emetogenic chemotherapy in infants, children and adolescents seem to be safe and well tolerated.

Methods

This single-center study included all pediatric oncology patients who had received at least one OLD between 2002 and 2005. Information on clinical characteristics, OLD, and adverse events were extracted retrospectively from charts. **Adverse events (AE) definitely, probably or possibly related to OLD** were studied, excluding AE not or unlikely related to the OLD. Associations between potential predictors and at least moderate AE were analyzed by mixed logistic regression.

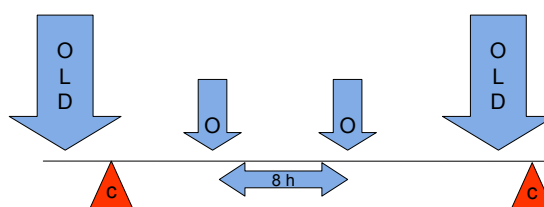


Figure 1. Administration of ondansetron loading dose (OLD).
O = standard ondansetron dose (5 mg/m² q8h)
C = highly emetogenic chemotherapy

Results

Of 167 patients treated with chemotherapy, 37 (22%) received 543 OLD in total (median, 12 doses per patient; range, 1 to 46). Their median age at first OLD was 6.9 years (range, 0.4 to 15.7). There were only mild, moderate or severe AE described, all temporary, while there were no life-threatening or lethal AE, or persistent AE of any degree. The most common AE were **hypotension, fatigue, injection site reaction, headache, hot flashes/flushes and dizziness**.

At least mild AE were described in 139 OLD (26%; exact 95% CI, 22% to 29%), at least moderate AE in 23 (4.2%; 2.8% to 6.3%) and severe AE in 5 (0.9%; 0.4% to 2.1%). **There were no life-threatening or lethal AE observed (0.0%; 0.0% to 0.6%).**

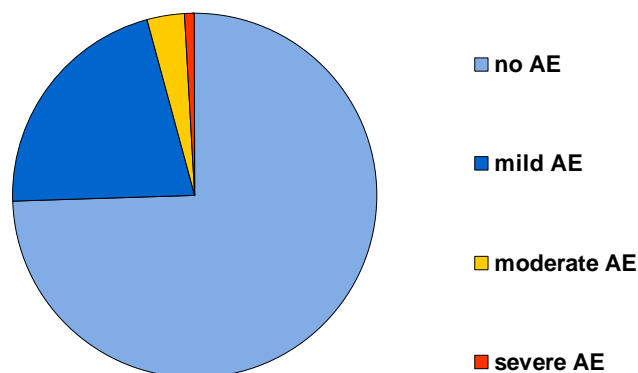


Figure 3. In almost 75% of the 543 OLD, no adverse events possibly, probably or definitely related to ondansetron occurred.

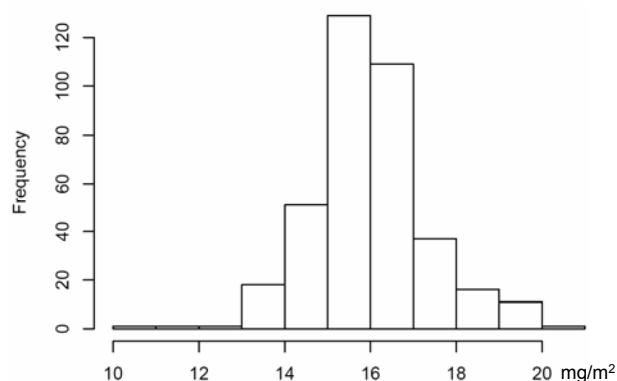


Figure 2. Ondansetron loading doses, surface corrected, in 375 patients with a body surface area ≤1.5 m². Children with a higher surface area received the top dose of 24 mg.

The risk of at least moderate AE was significantly associated with **female gender** (OR, 3.5; 95% CI, 1.4-8.8; P=0.010), erroneously given **second loading dose** (OR, 17.0; 1.9-154; P=0.012), and higher **24h cumulative surface corrected dose** (1.26 per mg/m²; 1.06-1.51; P=0.009).

OLD given to infants <2 years were not associated with more frequent AE described. In 6 of 52 OLD (12%; 95% CI, 5% to 23%) in infants, at least one mild AE was recorded, while there were no moderate or severe AE observed.