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Quality of trace mineral monitoring and replacement for patients on teduglutide for short bowel syndrome

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Prophylactic Anticoagulation in Children Receiving Home Parenteral Nutrition

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Introduction: Children with intestinal failure are dependent on long-term intravenous administration of home parenteral nutrition. They are at risk of loss of vascular access due to catheter-related venous thrombosis. Whether prophylactic anticoagulation is effective and safe in preventing catheter-related thrombosis is largely unknown. Our aim was to assess the incidences of catheter-related venous thrombosis and bleeding complications in children with intestinal failure on home parenteral nutrition treated with prophylactic anticoagulation.
Methods: All children, aged 0-18 years, treated with home parenteral nutrition at the Emma Children's Hospital / Amsterdam UMC were followed from January 2004 - July 2019. All patients were offered prophylactic anticoagulation from the start of home parenteral nutrition. The primary outcomes were catheter-related venous thrombosis and bleeding on prophylactic anticoagulation. Ethical clearance was obtained for this study.
Results: In total, 64 (89%) of 74 patients received prophylactic anticoagulation. Eight (11%) patients who did not receive prophylaxis and 2 patients with a malignancy were excluded. The median age at start of home parenteral nutrition was 7.5 months (IQR 4.2 – 47.9) and the median age at start of prophylaxis was 7.6 months (IQR 4.7 – 51.7). Patients were followed for a median of 32.2 months (IQR 13.8 – 58.1), with a total of 86,656 catheter days. At the start of the study 60 (94%) patients were treated with low molecular weight heparin, 3 patients (5%) with oral vitamin K antagonists and 1 patient with unfractionated heparin. During follow-up, 13 patients switched from LMWH to VKAs. A total of 12 patients developed 18 catheter-related thromboses. The incidence of catheter-related thromboses on prophylactic anticoagulation was 0.2 per 1000 catheter days. In total, 23 clinically relevant bleeds occurred, corresponding with 0.3 clinically relevant bleedings per 1000 catheter days. Median time to first event was 1268 days (IQR 566 – 2276) for thrombosis and 1139 days (IQR 364 – 2831) for clinically relevant bleeding. Cumulative event free survival after 5 years was 76% for catheter-related thrombosis.
Conclusions: Our study shows low rates of catheter-related venous thrombosis and of clinically relevant bleeding in children with home parenteral nutrition receiving prophylactic anticoagulation.

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Quality of Trace Mineral Monitoring and Replacement for Patients on Teduglutide for Short Bowel Syndrome

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Introduction: We evaluated serum levels of trace minerals including zinc, copper, and selenium in patients with short bowel syndrome (SBS) taking teduglutide. We worked to see if trace mineral values were being monitored and corrected.
Methods: We performed a retrospective review to identify patients with SBS on teduglutide. We obtained data for two years following initiation for monitoring of serum levels for zinc, copper, and selenium. We identified if supplementation was needed and initiated with improvement.
Results: Of the 148 patients evaluated for SBS, 19 were on teduglutide. Mean age was 53 years (range 28-76), 79% female, 63% Caucasian, 16% Black. 31.6% (n=19), 42.1% (n=19), and 42.1% (n=19) never had any screening of zinc, copper, and selenium respectively over the two year period. At baseline, 15.8% (n=19), 10.5% (n=19), and 10.5% (n=19) of patients had screening for zinc, copper, and selenium respectively. Of those checked no patients had a mineral deficiency at baseline. At 6 months, 31.6% (n=19), 31.6% (n=19), and 26.3% (n=19) had screening for zinc, copper, and selenium respectively. There were documented deficiencies of zinc (33.3%), copper (33.3%) and selenium (20%) in those checked at 6 months. Of those with documented deficiencies there was replacement in 62.5% of patients. Less patients were being monitored at 12 months, 18 months and 24 months respectively (Table 1).
Conclusion: This study indicates that there is a lack of trace mineral monitoring in patients taking teduglutide for SBS. In those being monitored there was a clear pattern of deficiencies being found by 6 months after initiation requiring repletion. Without adequate monitoring, it is difficult to know if patients are deficient in trace minerals and if supplementation is needed. Thorough monitoring is crucial to avoiding ongoing deficiencies.

Trace Mineral	Time Interval (months)	Percent Checked	Mineral Deficiency
Zinc	Baseline	15.80%	0%
	6	31.60%	33.30%
	12	26.70%	25%
	18	26.70%	0%
	24	14.30%	0%
Copper	Baseline	10.50%	0%
	6	31.60%	33.30%
	12	20%	0%
	18	26.70%	25%
	24	14.30%	50%
Selenium	Baseline	10.50%	0%
	6	26.30%	20%
	12	26.70%	0%
	18	26.70%	0%
	24	14.30%	0%