INTRODUCTION AND AIMS: Controlling parathyroid hormones (PTHs) is important for the prevention of kidney disease-mineral and bone disorder. However, vitamin D elevates serum calcium; and cinacalcet exacerbates gastrointestinal symptoms such as nausea, which reduces adherence and makes PTH difficult to control. Etelcalcetide, a novel intravenous calcimimetic, was released in Japan in February 2017. It is injected after hemodialysis, and therefore expected to be more effective compared to previous drugs. This prompted us to analyze the usefulness of etelcalcetide in patients on hemodialysis (HD).

METHODS: Forty-two patients on HD were switched from cinacalcet to etelcalcetide from April 2017 to October 2017. The mean age was 62.9 years (range: 29-89), and the mean number of years on HD was 15.9 ± 8.9 years. Cinacalcet was discontinued one day before changing to etelcalcetide. We evaluated blood tests (corrected calcium [Ca], phosphorus [P], and intact parathyroid hormone [i-PTH] levels) before and 2, 4, 8, 12, 16, 20, and 24 weeks after initiation of etelcalcetide. We also analyzed the gastrointestinal symptoms (Izumo Scale: upper gastrointestinal symptoms, 0-45; lower gastrointestinal symptoms, 0-35), Bristol Stool Scale (BSS: 1-7), nutritional status (geriatric nutritional risk index [GNRI] and normalized protein catabolic rate [n PCR]), and volume of parathyroid glands.

RESULTS: Serum i-PTH levels significantly declined after 12 weeks (p<0.01) and continued to decline at 24 weeks (240.7 ± 139.2 vs. 125.7 ± 82.1 pg/mL, p<0.01, figure). Serum corrected Ca levels significantly decreased at 6 weeks (9.2 ± 0.3 to 8.9 ± 0.5 mg/dL, p<0.05). However, after adjusting the dose of vitamin D and etelcalcetide, the corrected serum Ca levels increased to baseline level after 8 weeks. No significant differences were observed for serum phosphorus levels. The Izumo Scale scores for upper gastrointestinal symptoms significantly decreased from of 5.5 ± 6.1 to 2.3 ± 3.1 (p<0.01). In contrast, Izumo Scale scores for lower digestive symptoms and Bristol Stool Scale scores did not change. These data indicate that etelcalcetide had fewer gastrointestinal symptoms. The GNRI scores did not change. However, the n PCR significantly increased from 0.85 ± 0.08 to 0.90 ± 0.09 g/kg/day (p<0.05). The volume of parathyroid glands did not significantly change.

CONCLUSIONS: In this study, etelcalcetide was significantly more effective than cinacalcet at reducing i-PTH. Moreover, etelcalcetide produced fewer upper gastrointestinal symptoms. These data suggest that changing from cinacalcet to etelcalcetide may lessen gastrointestinal symptoms and improve adherence, thus reducing i-PTH levels. Further studies are needed to clarify the long-term safety and efficacy of etelcalcetide.