

Singaporean Asian Patients have paradoxically higher rates of vitamin D deficiency compared to Western Patients

¹Department of Endocrinology, Singapore General Hospital, Singapore ²Department of Surgery, Singapore General Hospital

Daniel C. Wai¹, Shanker Pasupathy², Sonali Ganguly¹, Kwang W. Tham¹

Background: Vitamin D deficiency has been reported in between 57% to 65% of patients in Western countries before bariatric surgery and can drop further after surgery, resulting in metabolic bone disease. No studies have however reported vitamin D (vit-D) levels in patients before bariatric surgery in tropical Singapore. **Aims of Study:** To retrospectively investigate vit-D and intact parathyroid hormone (iPTH) levels in obese patients immediately before undergoing bariatric surgery in a tertiary hospital. **Methods:** Baseline patient characteristics, preoperative Vit-D and iPTH levels were studied together with its relationship to race, gender and body mass index (BMI). Results were presented as mean (standard deviation). **Results:** 46 patients underwent bariatric surgery. 61% were female. There were 44% Chinese, 26% Malay, 24% Indian, and 7% were of other ethnicity. 78% had laparoscopic sleeve gastrectomy, 20% Roux-en-Y gastric bypass, and 2% bilio-pancreatic diversion. The mean age was 39 (10.6) and the mean BMI was 43.6 (9.8). The mean of vit-D was low at 17.4 ng/ml (8.6). 75% were deficient (<21 ng/ml), 21% were insufficient (21-29 ng/ml), and only 4% had sufficient vit-D (>29 ng/ml). Mean iPTH was low at 6.5 pmol/l (3.5). 50% of the patients had raised iPTH. Vit-D levels were inversely correlated with BMI ($r^2=0.242$, $p=0.008$). Non-Chinese patients had higher BMI (46.3 vs 40.0, $p=0.032$), lower vitamin D levels (13.6 vs 23.2 ng/ml, $p=0.002$) and higher iPTH (8.7 vs 4.4 pmol/l, $p=0.007$). Those were not different between males and females. **Conclusion:** The majority of obese patients, especially Malays and Indians, had deficient and insufficient vit-D levels even before bariatric surgery. Alarmingly the proportion of patients deficient was higher than in Western countries despite the fact that Singapore has sunshine all year round. Physicians in tropical countries therefore should routinely screen for its deficiency preoperatively with appropriate repletion.