Bariatric surgery increases the risk of major osteoporotic fracture: a self-controlled case series patients from the CPRD GOLD database linked to HES

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Background: The number of people undergoing bariatric surgery is likely to increase due to the obesity epidemic. Evidence suggests that bariatric surgery may increase the risk of fracture, however it is unclear whether this is due to the differences in characteristics between patients with and without surgery.

Objectives: To assess the association between bariatric surgery and fracture risk using a within person design.

Methods: A self-controlled case series analysis was undertaken on patients undergoing bariatric surgery and experiencing a fracture within 5 years either side of surgery date in the clinical practice research datalink (CPRD) GOLD dataset linked to hospital episode statistics (HES). The primary outcome was any fracture (except skull or digits), secondary outcomes were major (hip, vertebrae, forearm and humerus) and peripheral (forearm and lower leg) fractures. A Poisson model, producing incidence rate ratios (IRR), compared the 5-year post-operative fracture incidence to the 5-year pre fracture window. A post hoc analysis separated the two post-operative time windows into 0-2 years and 2.01 – 5 years. All models are adjusted for time varying bisphosphonate use.

Results: Of 5,492 patients undergoing bariatric surgery, 252 patients had 272 fractures at any site, 75 had 80 major osteoporotic fractures and 126 had 135 peripheral fractures. Only major fracture risk was found to be increased, with a near three fold excess risk (IRR (95% CI), 2.70 (1.31, 5.57)). Other results were 1.17 (0.86, 1.60) and 0.92 (0.60, 1.42) for any and peripheral fractures respectively. The post hoc analysis identified statistically significant increases to risk in the 3rd to 5th year post surgery for both any and major fractures 1.73 (1.08, 2.77) and 4.98 (1.94, 12.78) respectively. Major osteoporotic fractures also showed an increase risk in the first two years IRR 2.49 (1.17, 5.30). No increase in risk of peripheral fractures was observed.

Conclusions: Although only 75 patients had major osteoporotic fracture/s, risk post-surgery increased 2.5 times for the first two years before further increasing to 5-fold for the next three years. Further research is needed to understand the underlying mechanisms and potential therapy.

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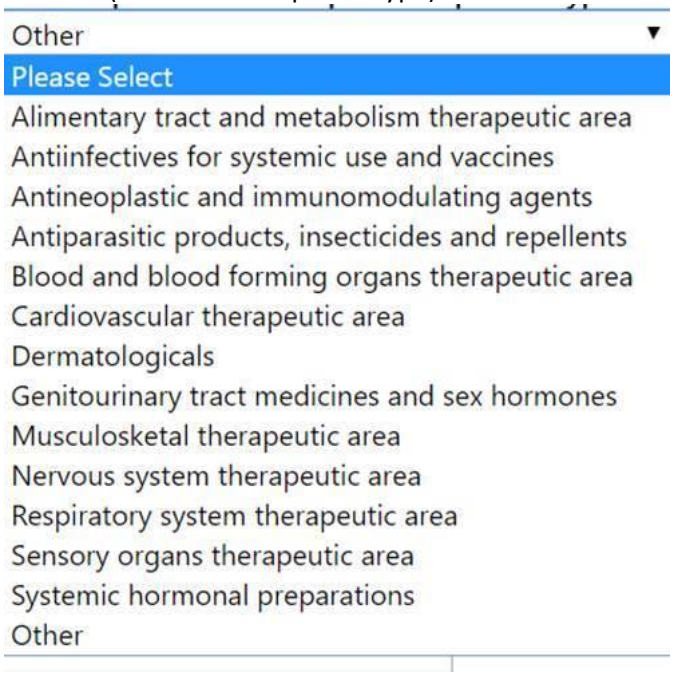

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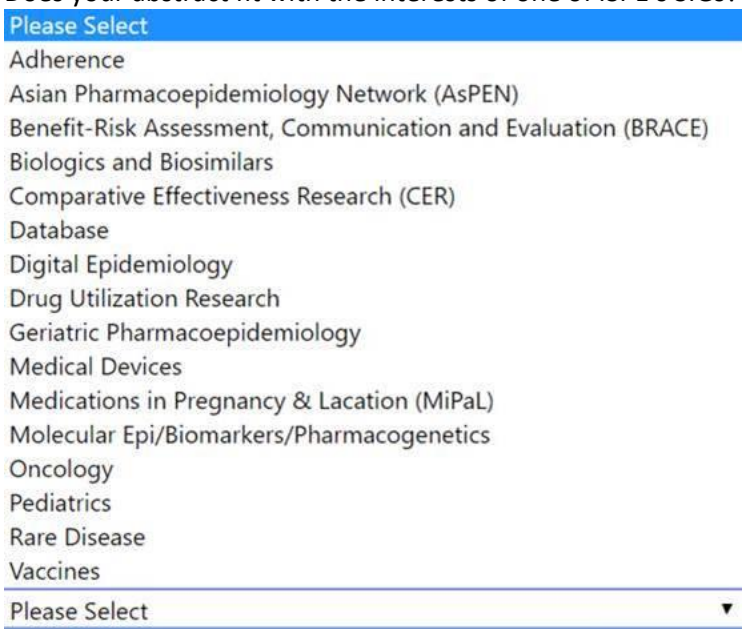

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