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OP0245

ASSOCIATION OF BARIATRIC SURGERY WITH THE RISK OF FRACTURE IN PATIENTS WITH OBESITY: A META-ANALYSIS OF REAL-WORLD EVIDENCE

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Background: Evidence from published epidemiological studies found inconsistent evidence on the association of bariatric surgery with fracture risk.
Objectives: To evaluate the impact of bariatric surgery on fracture risk.
Methods: Electronic databases PubMed, and Embase were searched for studies assessing the association between bariatric surgery and fracture risk by two independent investigators. The study search period was from inception to September 2021. Study selection, data extraction, and risk of bias were assessed by investigators independently. Newcastle-Ottawa Scale (NOS) was used to assess the risk of bias. The primary outcome was to compute the pooled fracture risk in patients with obesity who underwent bariatric surgery. Secondary outcomes include fracture risk based on follow-up duration and sites of fracture (hip, upper limb). Certainty of findings was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria.
Results: This meta-analysis was based on seven studies with a total of 156233 patients with a mean age of 41.65 ± 10.63 years. Included studies were of low risk of bias. A significantly increased risk of any fracture was found in the bariatric surgery group as compared to the non-surgical group with a pooled relative risk (RR) of 1.34 (95% CI: 1.05 – 1.70), p= 0.02 (Figure 1).

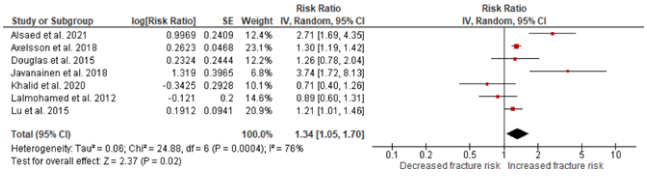

Figure 1. Forest plot showing high fracture risk in the bariatric surgery group

Subgroup analysis based on follow-up duration also revealed a significantly higher fracture risk with a RR of 1.75 (95% CI: 1.34 – 2.30), p= <0.0001 for studies with a follow-up period of >5 years. Likewise, analysis based on fracture sites revealed a significantly higher risk of hip fracture RR 1.34 (95% CI: 1.03 – 1.75), p=0.03 (Figure 2). Evidence was of low certainty as per the GRADE rating system.

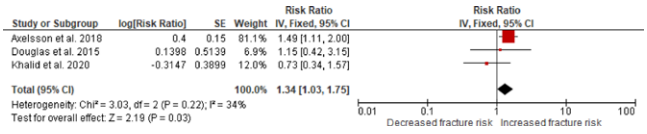

Figure 2. Forest plot showing high hip fracture risk in the bariatric surgery group

Conclusion: The current study found that bariatric surgery was associated with increased fracture risk. Clinicians should also evaluate the bone health profiling of the patients before the surgery.
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OP0246

TO SCAN OR NOT TO SCAN (BOTH HIPS) – A BRISTOL EXPERIENCE

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Background: The current International Society of Clinical Densitometry (ISCD) recommendation for bone densitometry practice is that single hip measurement is sufficient in clinical practice, as there is overall a good correlation between the two hip bone mineral densities (BMD) (1) (2). However, discordance in individual T- scores and BMD between the 2 hips due to increasing age and osteoarthritis (3)-(5) is well recognised.
Objectives: We aimed to identify whether discordant hip BMD values would lead to differences in the FRAX risk assessment score between the two hips, and thereby impact treatment decisions in clinical practice.
Methods: We looked at all DXA scans performed at our centre for 2 months between 23/7/21 and 23/9/21. Cases in which both hips were scanned and anti-resorptive treatment was advised were included in our study. The femoral neck with the lower BMD is used to calculate the FRAX score and this was referred to as the 'reported' hip. The FRAX score for 'reported' and 'unreported' hip were calculated and the T-score of the spine was also noted. Our local treatment threshold is set at 20% for a major osteoporotic fracture and 5% for hip fracture. Cases of difference in scores crossing the 20%/5% FRAX threshold were highlighted and reviewed in more detail.
Results: DXA scans were performed in 328 patients over the 2 month period, of which 201 patients had both of their hips scanned. Of these, 50 patients were advised to start anti-resorptive treatment. The majority of the treatment decisions (60%; 30/50 cases) were based on the hip/femoral neck BMD value, while 40% (20/50 cases) were based on the spine T-score.
Where the treatment decision was based on hip/femoral neck BMD, 20% (6/30 cases) were found to have a FRAX risk above the treatment threshold at one hip only, meaning that treatment may not have been offered if both hips had not been scanned. Similarly, where treatment was advised based on spinal T-scores, 20% (4/20 cases) had a FRAX risk above treatment threshold at one hip only.
Mean age across these 10 cases with a discordant FRAX risk between the two hips was 72 years (range 59 – 83); 80% (8/10) were female. Steroid use and chronic inflammatory co-morbidities were the predominant indications for these DXA Scans.
Conclusion: A significant proportion of patients in our cohort (20%; 10/50) may not have been offered treatment if only one hip was scanned. Scanning both hips does not require much additional time and can help mitigate the risk of undertreating patients. The recommendation for best practice for DXA BMD measurements should be reviewed to consider lumbar spine and dual hip BMD as standard of care.
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Disclosure of Interests: Aishwarya Anilkumar: None declared, Sadaf Saeed: None declared, Ehsan Elsayed: None declared, Chandrin N. R. Jayatilleke: None declared, Stuart Webber: None declared, Mathew A. Roy Consultant of: Worked as a paid consultant for Kyowa Kirin.
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Outcome of COVID-19 in Rheumatic Diseases

OP0247

RISK FACTORS FOR SEVERE COVID-19 OUTCOMES: A STUDY OF IMMUNE-MEDIATED INFLAMMATORY DISEASES, THERAPIES AND COMORBIDITIES IN A LARGE US HEALTHCARE SYSTEM

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Background: The risk of acquiring COVID-19, and the severity of illness if acquired, in the context of immune-mediated inflammatory diseases (IMIDs) and their therapy, remains incompletely understood. Reported infection rates and outcomes have varied depending on the IMIDs being studied, the nature and size of the study population, and the presence or absence of appropriate control populations. Having more reliable analysis on larger populations is essential for current and future pandemics.
Objectives: Health records from one of the largest health systems in the US are analyzed to determine whether specific IMIDs, including common rheumatologic conditions and specific immunomodulatory drugs, are associated with certain COVID-19 outcomes, using multivariate models that include common chronic comorbidities.
Methods: Patients (pts) with and without IMIDs who were tested for SARS-CoV-2 antigen (n=1,101,431) were identified from the EHR from Providence St. Joseph Health, which serves much of the western US. Immunomodulatory drug therapy was defined as use within three months prior to the first test. Multivariate logistic regression (LR) was applied with machine learning metrics (feature importance, p-value) reported on an 80% training set and AUROC reported on 20% test set.
Results: Rates for positive COVID-19 tests, invasive mechanical ventilation (IMV) and mortality were not greater in the IMID than non-IMID population, whilst hospitalization was similar (Table 1). Importance and statistical significance of selected factors are shown in (Figure 1). The most important risk factors for hospitalization were age and heart failure. Heart failure was the most important risk factor for IMV, and age for increased mortality. Diabetes showed weak associations with these three outcomes. Spondyloarthritis was weakly associated with decreased hospitalization, IMV, and death. The use of conventional synthetic disease-modifying antirheumatic drugs (csDMARDS) and corticosteroids (CS) showed a weak association with hospitalization, and rituximab (RTX) showed a weak association with increased mortality. Limitations include lack of vaccination status and IMID disease severity/flare status. Testing was not universal.

Table 1. COVID-19 test results, hospitalization, invasive mechanical ventilation, and mortality

	Tested for COVID	COVID+	Hospitalized *n*, % of COVID+	IMV *n*, % of COVID+	Mortality % of COVID+
	n (%)	*n*, % of tested	*n*, % of COVID+		
All pts	1,101,431 (100%)	128,962 (11.7%)	19,704 (15.3%)	1,001 (0.8%)	2,232 (1.7%)
Pts without selected IMIDs	1,049,007 (95.3%)	123,943 (11.8%)	18,729 (15.1%)	959 (0.8%)	2,165 (1.7%)
Pts with selected rheumatologic IMIDs	28,411 (2.5%)	2,974 (10.5%)	578 (19.4%)	27 (0.9%)	51 (1.7%)
Pts with other selected IMIDs	24,013 (2.2%)	2,045 (8.5%)	397 (19.4%)	15 (0.7%)	16 (0.8%)

Selected rheumatologic IMIDs = RA, SpA, PsA, SLE, PsO, SSc; Other selected IMIDs = IBD, MS.

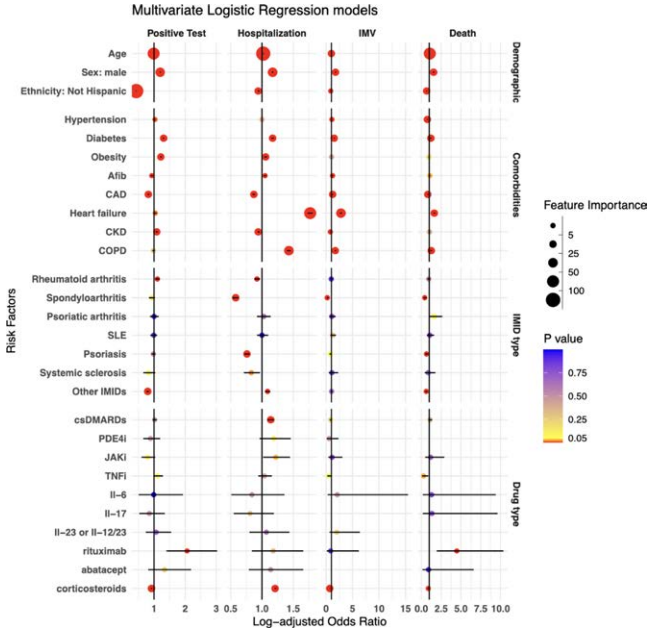

Figure 1. Odds ratio (OR) for selected risk factors for COVID-19 positive test, hospitalization, IMV, and mortality

Conclusion: This analysis of COVID+ patients (n=1,101,431) from a large US health care system analyzes outcomes of patients with *and* without IMIDs; the majority were rheumatologic IMIDs. Patients with IMIDs had a similar rate of hospitalization, IMV, and death as those without IMIDs. The strongest associations with COVID-19 severity included heart failure and age. Spondyloarthritis was weakly associated with favorable outcomes whilst other conditions, including rheumatologic, were not worse than those of non-IMID patients. csDMARDs and corticosteroids were weakly associated with hospitalization and RTX with increased mortality. Other therapies were not associated with severe adverse outcomes.
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Disclosure of Interests: Philip J Mease Speakers bureau: AbbVie, Amgen, Eli Lilly, Janssen, Novartis, Pfizer, UCB, Consultant of: AbbVie, Aclaris, Amgen, Boehringer Ingelheim, Bristol Myers Squibb, Eli Lilly, Galapagos, Gilead, GlaxoSmithKline, Inmagene, Janssen, Novartis, Pfizer, Sun Pharma, UCB, Grant/research support from: AbbVie, Amgen, Bristol Myers Squibb, Eli Lilly, Galapagos, Gilead, Janssen, Novartis, Pfizer, Sun Pharma, Swedish Medical Foundation, UCB, Qi Wei Grant/research support from: Pfizer, Swedish Medical Foundation, Michael Chiorean Speakers bureau: Pfizer, BMS, Takeda, AbbVie, Janssen, Medtronic, Consultant of: Pfizer, Lilly, Janssen, Arena, Medtronic, BMS, AbbVie, Grant/research support from: Takeda, Pfizer, Novartis, Swedish Medical Foundation, Lulu Iles-Shih Grant/research support from: Pfizer, Swedish Medical Foundation, Jennifer Hadlock Grant/research support from: Pfizer, Swedish Medical Foundation
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OP0248 SEVERE COVID-19 OUTCOMES AMONG PATIENTS WITH AUTOIMMUNE RHEUMATIC DISEASES: A POPULATION-BASED STUDY

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Background: Individuals with autoimmune rheumatic diseases (ARDs) may be at greater risk of severe COVID-19 outcomes than individuals in the general population.
Objectives: This study assesses the risk of COVID-19-related hospitalization, intensive care unit (ICU) admission, and COVID-19-specific mortality in patients with ARDs compared to matched general population comparators.
Methods: We conducted a population-based cohort study, using administrative datasets from British Columbia, Canada (February 2020-August 2021). Among all test-positive SARS-CoV-2 adults, we used ICD codes to identify all individuals with an **ARD**: rheumatoid arthritis (RA), psoriasis/psoriatic arthritis (PsO/PsA), ankylosing spondylitis (AS), and systemic autoimmune rheumatic diseases (SARDs), including systemic lupus erythematosus (SLE), Sjogren's syndrome, systemic sclerosis, myositis, and adult systemic vasculitides. Individuals with an ARD were matched 1:5 to general population test-positive SARS-CoV-2 individuals on age (± 5 years), sex, month/year of initial positive SARS-CoV-2 test, and health authority. Conditional logistic regression models adjusting for socioeconomic status, Charlson comorbidity index, hypertension, rural address, and number of previous COVID-19 PCR tests were performed to assess risk of COVID-19-related hospitalizations, ICU admissions, and COVID-19-specific mortality (mortality with primary ICD code for COVID-19).
Results: The risk of COVID-19-related hospitalization was significantly increased for patients with ARDs overall (aOR: 1.30) (Table 1). Within ARDs, the patient group at greatest risk of hospitalization was adult systemic vasculitides (aOR: 2.18). The risk of ICU admission was significantly increased for patients with ARDs overall (aOR: 1.30). Within ARDs, the patient group at greatest risk of ICU admission was those with AS (aOR: 2.03). The risk of COVID-19-specific mortality was significantly increased for patients with ARDs overall (aOR: 1.24). Within ARDs, the patient group at greatest risk of COVID-19-specific mortality was those with AS (aOR: 2.15).

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