RISK FACTORS FOR DISLOCATION AFTER REVERSE TOTAL SHOULDER ARTHROPLASTY: A SYSTEMATIC REVIEW AND META-ANALYSIS

Marios Loucas*, Rafael Loucas *, Maximilian Vetter *, Lukas Ernstbrunner*, Paul Borbas*, Karl Wieser*

*** Departement of Orthopaedics, Balgrist University Hospital, University of Zurich, Zurich, Switzerland**

INTRODUCTION

Instability after reverse total shoulder arthroplasty (RTSA) is a dreaded complication. Risk factors for developing postoperative instability are uncertain.

Purpose: To quantitatively and qualitatively analyze risk factors of instability after RTSA.

MATERIALS AND METHODS

Until June 2020, PubMed, EMBASE, the Cochrane Library and ISI Web of Science were searched using the following Boolean operators: (prosthetic dislocation OR prosthetic instability OR recurrent instability OR dislocation prosthesis OR instability) AND (shoulder arthroplasty OR reverse total shoulder arthroplasty OR reverse shoulder prosthesis OR RTSA) AND complications. Data were pooled and a meta-analysis was conducted.

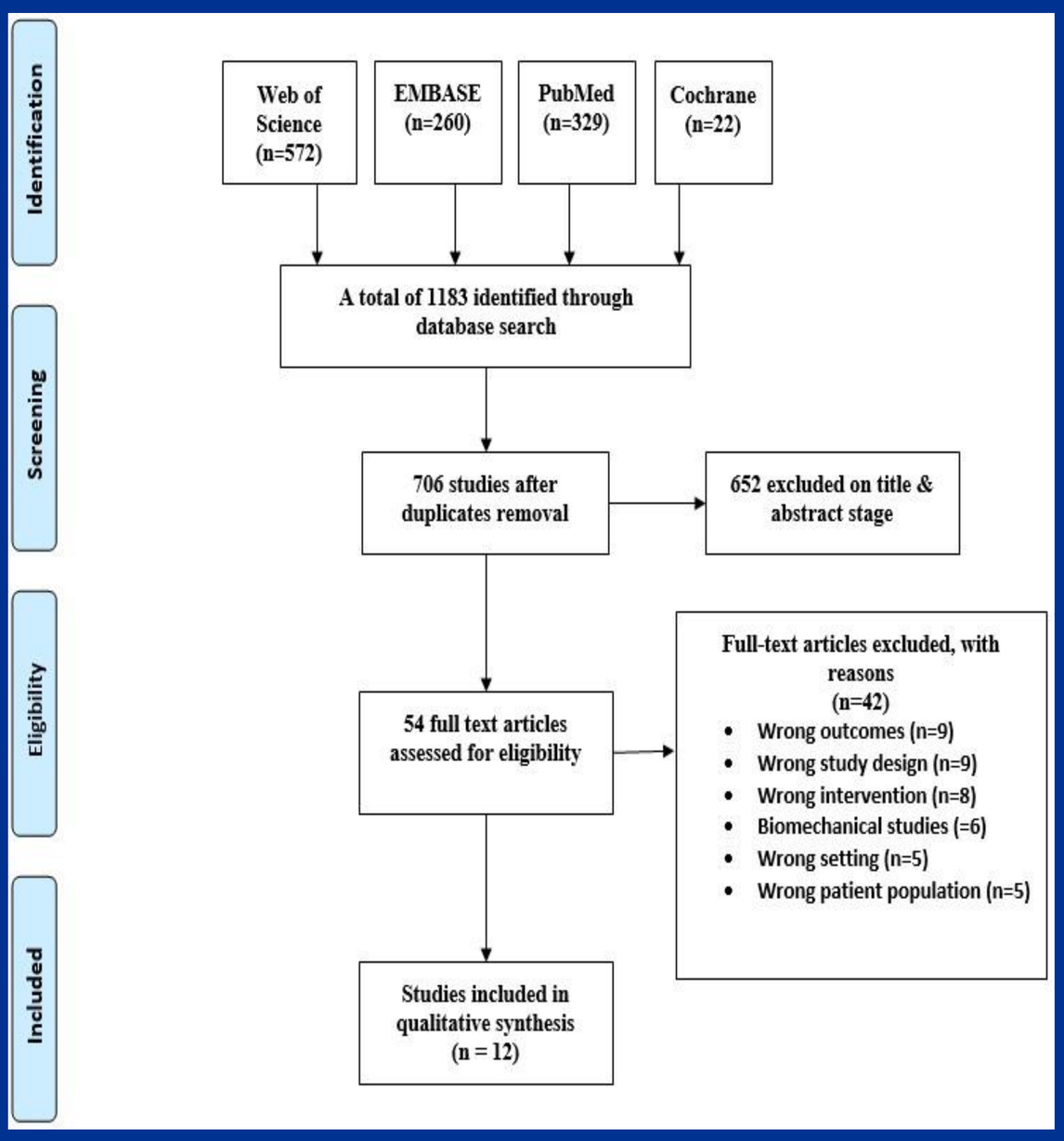

Fig. 1:Flowchart of literature search

RESULTS

Of 1183 studies identified, twelve studies involving 3810 patients were included. The mean age was 68.8 and the mean follow-up was 46 months. A RTSA dislocation was reported in 151 of 3810 patients (4.0%). Patient-specific risk factors for postoperative instability were male gender, BMI greater than 30 kg/m^2, younger age at surgery, prior shoulder surgery, indication for primary RTSA, revision of RTSA, periprosthetic joint infection, subscapularis deficiency, absence or resorption of greater tuberosity, and inadequate soft tissue tensioning. Implant-specific risk factors were medialized center of rotation, scapular notching, glenoid component malpositioning (i.e. superior tilt), and increased superior baseplate inclination.

Pooled analysis revealed that subscapularis deficiency (odds ratio (OR), 18.4; 95% confidence interval (CI), 3.5-97.8; p=0.0006), absence or resorption of greater tuberosity (OR, 8.9; 95% CI, 3.6-21.5; p<0.001), inadequate soft tissue tensioning (OR, 4.5; 95 % CI, 1.5-13.7; p=0.009), prior shoulder surgery (OR, 4.0; 95% CI, 1.20-13.57; p=0.02), revision of RTSA (OR, 4.0; 95% CI, 2.1-7.6; p<0.001), and male gender (OR, 3.8; 95% CI, 1.7-8.3; p=0.001) were associated risk factors for RTSA instability.

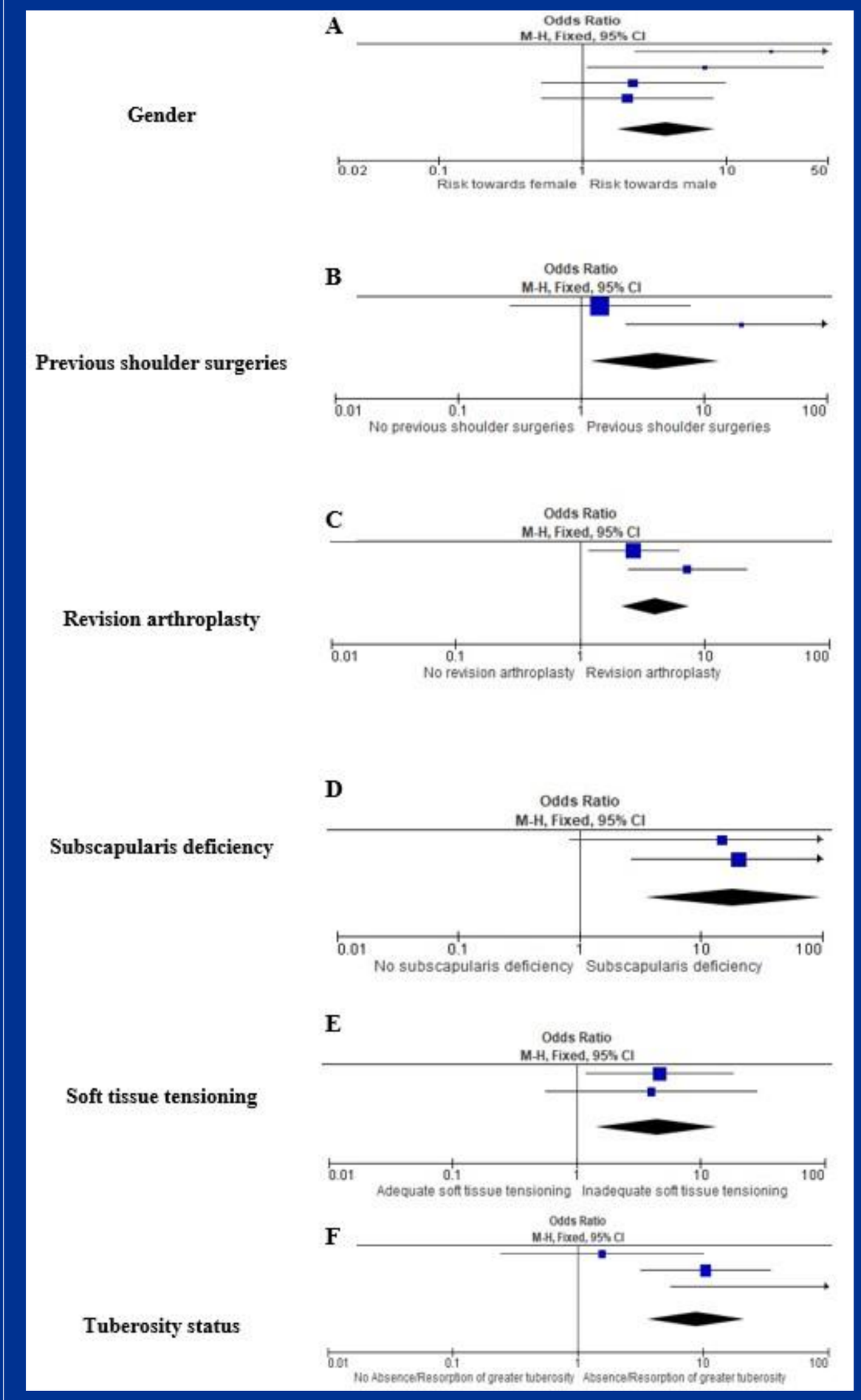

Fig. 2: Forest plots of the meta-analyses of A) Gender, B) Previous shoulder surgeries, C) Revisions, D) Subscapularis deficiency, E) Inadequate soft tissue tensioning, F) Tuberosity status

CONCLUSIONS

The pooled rate of dislocation after RTSA is 4.0%. Several patient-specific and implant-specific risk factors have been identified and especially implant-specific risk factors appear avoidable with the current knowledge, implant design and technology.

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