

Appendix 2 – Summary of studies reporting TEA in inflammatory arthritis

| Study | Study Design | Population | Intervention (s) | Results |
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| Pham et al. 2018 [13] N=54 | Retrospective case series | Mean Age 60 (29-83) 76% female All RA | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean flexion 121° to 136°, Mean extension 42° to 23° Mean MEPS 91 (55-100), QuickDASH 34 (0-75) 22% radiolucent lines Complications 26% 13% revisions – 5.5% infection, 5.5% aseptic loosening, 2% ulna fracture Survival 97% at 5 years and 85% at 10 years |
| Ibrahim et al. 2017 [14] N=7 | Retrospective case comparison series | Mean age 43.7 (34-50) Juvenile idiopathic arthritis | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean MEPS 31.4 (20-50) to 88 (80-100) Complications 71.4% 2 revisions 28.6% - aseptic loosening Survivorship was 5 year 100% and 10 years 69% |
| Hanninen et al. 2017 [15] N=55 | Retrospective case series | Mean age 57 (29-79) | Discovery Elbow System (DES; Biomet Orthopedics, Warsaw, IN) | Mean flexion arc 91° to 122° Mean MEPS - 93 (50-100), Mean DASH 43 (9-84) 15.4% Complications; Infection 10%, Ulna nerve palsy 5.4% 7.3% revisions – 5.4% aseptic loosening, 1.9% peri-prosthetic fracture |
| Sanchez Sotelo et al. 2016 [16] N=435 | Prospective consecutive cohort | Mean age 64 +/- 11 years 79% female 87% RA 13% RA and concurrent trauma | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean flexion to 135° (50°-155°), Mean extension 20° (0-90°) Mean MEPS 90 (80-100) Complications; Intra-op fracture 4%, Nerve injury 0.2%, Triceps dysfunction 1% Bushing wear 23% Revision rate 11%; 9% mechanical failure and 2% infection Survivorship 92% at 10 years, 83% at 15 years and 68% at 20 years |
| Mukka et al. 2015 [17] N=25 | Prospective cohort study | Mean age 64 (29-80) 84% female | Discovery Elbow System (DES; Biomet Orthopedics, Warsaw, IN) | Mean flexion arc from 88° to 113° Mean QuickDash 66.5 to 40.2 Mean EQ-5D from 0.68 to 0.75 8% Complications; 4% ulna nerve entrapment and 4% triceps rupture 12% revisions; 4% aseptic loosening, 8% deep infection |

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| Ogino et al. 2015 [18] N=27 | Retrospective case series | Mean age 68.7 +/- 8.2 88% female | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) Standard ulnar N =20 Short ulnar n = 7 | Mean flexion arc Standard group 87° to 116.1° Shortened group 79° to 107.1° MEPS Standard group 50.3 to 94.2 Shortened group 56.5 to 90.8 Complications Standard group 15%; 5% intra-op fracture, 5% wound problems, 5% infection Shortened group 28.6%; 14.3% wound problems, 14.3% ulna nerve palsy |
| Baghdadi et al. 2014 [19] N= 29 | Retrospective case series | Mean age 37 (24-68) 83% female | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean flexion arc improved from 66° +/- 44 to 89° +/- 35 Mean MEPS 78 (50-100) Survivorship 96.4% and 79.9% at 5 and 10 years |
| Prasad et al. 2012 [20] N=55 | Retrospective case series | Mean age 62 (37-81) 67% female | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean flexion arc 46°-98.5° to 32.6°-124.3° Mean MEPS 80.9 30.9% Complications; 14.5% aseptic loosening, 5.5% intra-op fracture, 3.6% ulnar neuropathy, 5.5% stiffness, 1.8% infection |
| Lee et al. 2005 [21] N=8 | Retrospective case series | Mean age 56 (49 to 68) 87.5% Female 75% RA 25% Acute fracture in RA | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean flexion arc 101.3° (70° to 120°) Mean MEPS 93.1 (75-100) 12.5% Complications; intra-op fracture |
| Gill et al. 1998 [22] N=78 | Retrospective case series | 72% female | Coonrad-Morrey (Zimmer, Warsaw, IN, USA) | Mean flexion arc 90° to 103° Mean MEPS from 42 to 87 14.1% Complications; 3.9% triceps avulsion, 3.9% intra-op fractures, 2.6% deep infections, 2.6% ulna fracture, 1.3% ulna component fracture Revision 13% Survival 94.4% at 5 years, 92.4% at 10 years |

RA – rheumatoid arthritis, ROM – range of motion, QuickDASH - Quick Disabilities of the Arm, Shoulder and Hand Score, MEPS – Mayo Elbow Performance score, DASH - Disabilities of the Arm, Shoulder and Hand Score.