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UK temporomandibular joint replacement database: a report on one-year outcomes

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Abstract

Alloplastic temporomandibular joint (TMJ) replacements are increasingly subspecialised, and supraregional centres that treat sufficient numbers to ensure high standards are emerging. Having recently reported the introduction of a national TMJ joint replacement database that is endorsed by the British Association of TMJ Surgeons (BATS), we now present the first-year outcomes. This was a review of all data in the BATS National Case Registration of TMJ Replacement as of June 2014. A total of 252 one-year outcome records were available. Key outcomes were median (IQR) improvements in interincisal distance of 9 (4–15) mm ($p < 0.001$) and worst-sided pain score of 6 (4–8) ($p < 0.001$). Pain scores improved or remained static at one year in all but 3 (2%) patients. There was a significant improvement in the proportion of patients who reported a good, very good, or outstanding quality of life at one year (38% at baseline to 87% at one year; $p < 0.001$). While outcome reports from single centres for alloplastic TMJ replacements have already been published in the United Kingdom, this is the first dedicated national database in this country that will yield valuable longitudinal follow-up data. Outcomes were comparable with smaller published series and showed improvements in pain, dietary intake, quality of life, and function, with few outliers. The database has recently moved to a new software system and we hope to publish three-year and five-year outcomes in due course.

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Keywords: TMJ replacement; temporomandibular joint; national database

Introduction

Alloplastic replacements of the temporomandibular joint (TMJ) have been done in the United Kingdom (UK) since 1987.¹ However, total joint replacement has increasingly become subspecialised, and supraregional centres that treat sufficient patients to ensure high standards have now emerged. Recent publications in this journal have highlighted the trend towards the centralisation of such operations and the need for training to continue after higher surgical training in oral and maxillofacial surgery (OMFS) in the UK.^{2,3}

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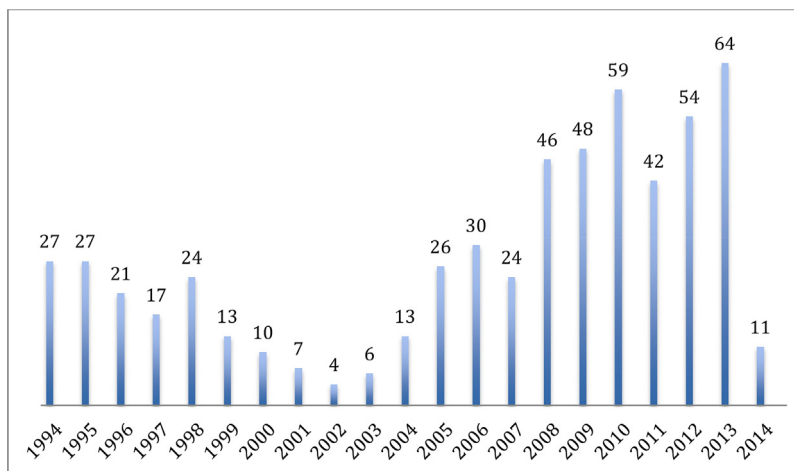


Fig. 1. Total number of cases/year 1994–2014.

Guidelines that are followed by members of the British Association of TMJ Surgeons (BATS) have been produced for prosthetic total replacement of the TMJ in the UK.⁴ BATS surgeons have developed an internet-accessed tool using Snap Surveys to provide national data on replacement joints and to allow surgeons to compare outcomes with their peers.⁵ The recording of national outcomes, which has been useful in other areas of surgery that have benefitted from greater centralisation (such as cleft care in the UK), enables greater transparency of results, shared experience, and collaborative learning.⁶

We have previously highlighted the introduction of the national TMJ joint replacement database that is endorsed by BATS surgeons and reported baseline data.⁵ This paper follows on directly, and we present the first-year outcomes.

Methods

This was a review of all data from the BATS National Case Registration of Temporomandibular Joint Replacement up to June 2014. The first data were entered in the summer of 2011 and included prospective as well as retrospective data from 1994. Longitudinal results for individual patients were available for analysis at baseline and one year, though cross-sectional results were available for up to five years.

Dietary and pain scores were rated from 0 to 10, where 10 signified worst pain or normal dietary intake. Patient-reported outcomes were taken from validated questionnaires that were adapted for the purposes of our survey: chewing from the Liverpool Oral Rehabilitation Questionnaire, sleeping from the European Organisation for Research and Treatment of Cancer (EORTC) C30, and overall quality of life from the University of Washington Quality of Life (UW-QoL) questionnaire.

The paired *t* test was used to assess changes in pain scores and interincisal distances (mm) from baseline to one year. The McNemar test was used to assess change in the percentage of patients who reported a good, very good, or outstanding over-

Table 1

Types of replacement joint used.

	Unilateral (n = 318)	Bilateral (n = 265)	
		Both sides	1 side only
TMJ Concepts	147 (46)	131 (49)	4 (2)
Biomet	44 (14)	39 (15)	5 (2)
Christensen	123 (39)	70 (26)	5 (2)
Custom prosthesis	164 (52)	130 (49)	3 (1)
Stock prosthesis	104 (33)	59 (22)	5 (2)
Co-Cr joint	120 (38)	84 (32)	4 (2)
Titanium joint	47 (15)	34 (13)	2 (1)

all health-related quality of life (the other options being fair, poor, or very poor). The McNemar–Bowker test was used to assess change in difficulty in chewing, and pain whilst chewing (in both: always, often, sometimes, never). Probabilities of less than 0.05 were considered significant.

Results

In June 2014, 592 baseline records were available for analysis. Fig. 1 shows the number of operations each year. Patients had a mean (SD) age of 45 (14) years, and the female:male ratio was 5:1. The various diagnoses at replacement are shown in Fig. 2. Unilateral joint replacements were equally distributed between left and right sides. The commonest system used was TMJ Concepts (Ventura, CA, USA), which accounted for 147/318 (46%) unilateral, and 131/265 (49%) bilateral replacements (Table 1). Custom-made prostheses were used more commonly than stock versions.

On cross-sectional analysis of the baseline results, the maximum interincisal distance (where recorded) was less than 30 mm in 444/539 (82%) patients, and less than 10 mm in 59/539 (11%). The median (range) dietary score was 3 (range 0–10, with 0 being a liquid diet) at baseline (n = 419). A total of 185/282 (66%) patients had difficulty chewing and 181/265 (68%) always had pain when they chewed. Pain was

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