

1-Year Treatment Effects for Bicondylar Total Knee Arthroplasty in a Large Single Center Cohort

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Introduction:

The treatment effect (TE) is a newer method to measure the change after treatment. The TE is calculated as number: $TE = \text{symptom reduction} / \text{baseline symptoms}$. A positive score means amelioration, 0 staying unchanged and a negative score worsening; the best score is 1 meaning a patient without symptoms after treatment. In this study the 1 year TE's for bicondylar TKA were calculated in a large cohort and separated in 5 outcome groups.

Methods:

The registry data of a single-unit university based arthroplasty center were used. All patients with primary bicondylar TKA for osteoarthritis were included; excluded were: polyarthritis, unicondylar knee arthroplasty, constraint TKA, revision, neoplasia, infection, no agreement to participate.

All patients received a cemented bicondylar TKA without patellar resurfacing. All patients had assessment with patient questionnaires (Oxford Knee Score) before and one year after surgery.

For each patient the treatment effect (TE) was calculated using the OKS. Descriptive statistics were used to determine the variability of scores before and after TKA. The cohort was separated in 5 outcome groups. Excellent: $TE > 0.95$, good $TE > 0.5$ to 0.95 , moderate $TE > 0.2$ to 0.5 , unchanged $TE 0.2$ to -0.2 and worse < -0.2 .

Results:

From 01/2013 to 12/2017, 913 patients in the registry received TKA thereof 771 had bicondylar TKA. 189 were excluded during follow up leaving 582 patients for analysis. 312 women (53.7%), the average age was 68.7 years, the mean BMI was 30.9 kg/m^2 and 47.8% had serious comorbidities (ASA 3 and 4).

The mean OKS improved significant from mean 22.1 points (SD 6.8) to 36.7 points (SD 8.5) ($p < 0.001$). The TE's ranged from 1 to -0.62 with a mean treatment effect of 0.56 (SD 0.31).

The 5 outcome groups were: excellent 5.5%, good 57% and moderate 23.4%. 11.9% remained unchanged and 2.2% worse. 662 patients (=85.9%) responded to treatment (=excellent+good+moderate).

Conclusion:

The treatment effect is a simple way to measure outcome with higher precision compared to "classic outcome". The 5 outcome categories are useful to describe the different qualitative outcomes. 85.9% of the patients responded to TKA; however 14.1% of the patients had no or even a negative treatment effect.