Clinical Evaluation Of Vanguard

Deep Dish Rotating Platform Knee

Protocol number: BMETEU.CR.EU13B

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1 STUDY SYNOPSIS

Complete Protocol Title	Clinical Evaluation Of Vanguard Deep Dish Rotating Platform Knee
Protocol Number	BMETEU.CR.EU13B
Short Protocol Title	Vanguard Deep Dish
Sponsor	Biomet GSCC bv Hazeldonk 6530, 4836 LD Breda, The Netherlands
Manufacturer	Biomet Inc.
Study Device(s)	Vanguard DDRP Vanguard CR
Study Objectives/Endpoints	**Primary Endpoint** American Knee Society Knee Score at 2-year post-operative. **Secondary Endpoint** - Patient success at 2 years postoperative - American Knee Society Score at each postoperative visit. - Radiographic evaluation at each postoperative visit. - Adverse events. - Survivorship at 10 year postoperative.
Indications/Target Population	Patients which are candidates for a total knee replacement because of gonarthrosis
Inclusion/Exclusion Criteria	**Inclusion criteria** 1. Patients with a pre-operative knee score of < 70. 2. Patients scheduled to undergo primary total knee replacement with any of the following indication: a. Painful and disabled knee joint resulting from osteoarthritis. b. One or more compartments are involved. 3. Need to obtain pain relief and improve function. 4. Ability and willingness to follow instructions, including control of weight and activity level, and to return for follow-up evaluations. 5. A good nutritional state of the patient. 6. Full skeletal maturity of the patient, patients who are at least 18 years of age. 7. Patients of either sex. 8. Consent form read, understood, and signed by patient. **Exclusion criteria** Absolute contraindications include the following diagnoses: a. Patients with a pre-operative knee score of >70. b. Infection.

	c. Osteomyelitis. d. Previous partial or total prosthetic knee replacement on the operative side. e. Skeletal immaturity of the patient, patients who are less than 18 years of age. f. Sepsis. g. g. Patients who had body mass index >40.
Study Design	International, multicenter, randomised, controlled trial
Clinical Phase	Post-market
Sample Size	A total of 340 study subjects implanted with the study device per cohort.
Length of Study	13 years (3 years of enrollment (all sites) and 10 years of follow-up)
Materials and Methods	Case report forms were completed in hospital at Pre-op, Surgery, Immediate post-op, and the 6 week, 6 months, 1-year, 2-year, 3-year, 5-year, 7-year, and 10-year intervals visits.
Data Collection	Paper
Statistical Reporting	Data collected was summarized and reported to each participating investigator. Statistical analysis was conducted by Zimmer Biomet. Survivorship was evaluated using Kaplan-Meier.
Scores/Performance Assessments	Knee Society Score, Oxford Knee Score, WOMAC, Forgotten Joint Score and Lower Extremity Activity Scale.
Standards	The PMCF is compliant with the below: • ISO 14155: 2020 - Clinical investigation of medical devices for human subjects - Good clinical practice. (*) The study protocol may have been drafted according to another version of the ISO 14155. Adverse Event definitions and reporting are according to ISO 14155:2020. • The Declaration of Helsinki (DoH) - Ethical principles for medical research involving human subjects.
Study Funding	Funding for this clinical study is made available by Zimmer Biomet to support clinical data collection, IRB/EC review fees and other expenses associated with the conduct and execution of this study protocol as outlined in the fully executed Clinical Trial Agreement.

2 STATISTICAL ANALYSIS PLAN

2.1 Sample Size

Patient populations for RCT group and NRCT group are determined based on non-inferiority test. Furthermore, non-inferiority is tested for both the primary endpoint and one of the secondary endpoints. Sample size calculation is conducted for each endpoint. The final patient number is the larger of the two sample sizes.

Endpoint – American Knee Society Score (KSS)

N=67 Correction for 15% Lost to Follow-up (approximately 7.5% each year): N=79

Endpoint: Patient success rate at 2 year postoperative:

N=127, Correction for 15% Lost to Follow-up (LTF) (approximately 7.5% each year): n=150

The final patient population is the larger of these two sample sizes. Therefore, 150 cases are needed each arm. To compensate for possible lost to follow up add 20 more patients each arm, hence, the total number of cases for RCT group is 340.

2.2 Statistical Analysis

2.2.1 Descriptive statistics

Continuous outcome variables and their differences are analyzed with parametrical statistical techniques, such as t-tests, unless the normality assumption does not seem reasonable for the data, in which case non-parametric techniques are considered e.g. Wilcoxon/Mann-Whitney tests.

Categorical outcome variables are analyzed with chi-square tests and/or Fisher's exact tests (depending on the expected values in the categories). For the relevant parameters (subsidence, survival pain and function) also the 95 percent confidence intervals are calculated.

The effect of parameters such as age, sex and operators are evaluated using multiple variate analysis.

All data are analyzed by blinded researchers.

2.2.2 Interim analysis (if applicable)

No interim analysis is performed, because it is expected that all patients are included in 6 months, so no patients will have obtained the primary outcome.

The 2, 5 and 10 years results may if possible be published in orthopedic journals and at scientific meetings.