

## **7. SUMMARY**

### **Introduction**

Osteoarthritis (OA) is the most common joint disorder and leading cause of disability in adults, with an increasing socioeconomic impact. Knee OA accounts for much of this burden. Total knee arthroplasty (TKA) is a well-accepted treatment for severe knee OA, and number of TKA procedures performed annually is increasing significantly. Three-dimensional gait analysis is widely used for clinical evaluations and it is recognized as a crucial element in the quantitative gait evaluation. However, there is a continuous search for best and simple method of gait assessment. The gait indexes has a great potential to be such tool of evaluation.

The purpose of this study was the assessment of potential use of Gait Deviation Index (GDI) and Gait Variability Index (GVI) to evaluate pre-to-postoperative gait pattern changes after TKA, and identify factors which might be predictive of TKA outcome.

### **Material and methods**

The research included fifty patients with diagnosed unilateral knee osteoarthritis, who were treated with cementless TKA with posterior cruciate ligament retaining. The patients were 52-79 years old, with an average age of 67,4 years. Fifty healthy volunteers were selected as the control group.

The value of GDI, GVI, Western Ontario and McMaster University Osteoarthritis Index (WOMAC), Knee Society Score and Visual Analogue scale (VAS) scores before TKA, six month after TKA and twelve months after operation were compared. The gait assessment of TKA group and control group were analyzed by BTS Smart gait capture system.

### **Results**

Gait parameters of patients with OA measured by GDI and GVI indexes improved after TKA. The values raised in both operated and non-operated limb. The value of GDI increased from 84,05 to 93,89 pts for operated limb and from 92,59 to 94,69 pts for non-operated limb. The improvement in GVI index was 83,91 to 90,48 pts for operated limb and 85,81 to 92,62 pts for non-operated limb. However, all values were lower than control group. Significant differences were also found for selected kinematic and spatio-temporal gait parameters.