

Increasing the number of robotic-arm assisted Total Hip Arthroplasty operations performed on an operating list decreases time per case.

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Background and Objectives

The introduction of robotic arm-assisted THA may have a significant effect on operating room efficiency. The objective of this study was to investigate the effect of the operating list case load in robotic arm-assisted THA focusing on operating room utilisation.

Methodology

Only cases performed in lists consisting exclusively of conventional primary THA or exclusively robotic primary THAs were included. All patients underwent posterior approach hybrid THA by a single surgeon in a single operating room. The anaesthetic and intra-operative protocols were identical. List duration was defined as the interval from the arrival of the first patient to the operating room department until the last patient entered the recovery area.

Results

A total of 246 primary THA cases (165 robotic arm-assisted, 81 conventional) were included in this retrospective cohort study. The median number of cases per list for robotic THA was 3 (IQR 2,4) and for conventional THA 3 (IQR 3,4) (**Figure 1**).

The mean session duration in lists consisting of four robotic arm THAs was 544 minutes and for four conventional THAs this was 414 minutes. In multiple robotic arm-assisted THA operating lists, the session duration/THA reduced with increasing list volume (Two THA list: 144min/THA, six THA list: 129 min/THA) (**Figure 2**). This finding was upheld when the last 50 robotic cases were analysed independently (Two THA list: 133min/THA, Six THA list: 122min/THA).

Conclusions

This study identified a significant improvement in the operating list utilisation when multiple robotic-arm assisted THA cases were listed in an operating list. This finding appears to be independent of the learning curve effect.

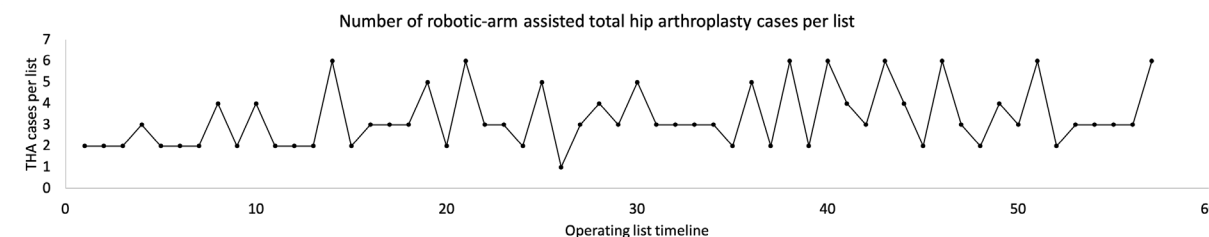


Figure 1: The number of total hip arthroplasty cases per list

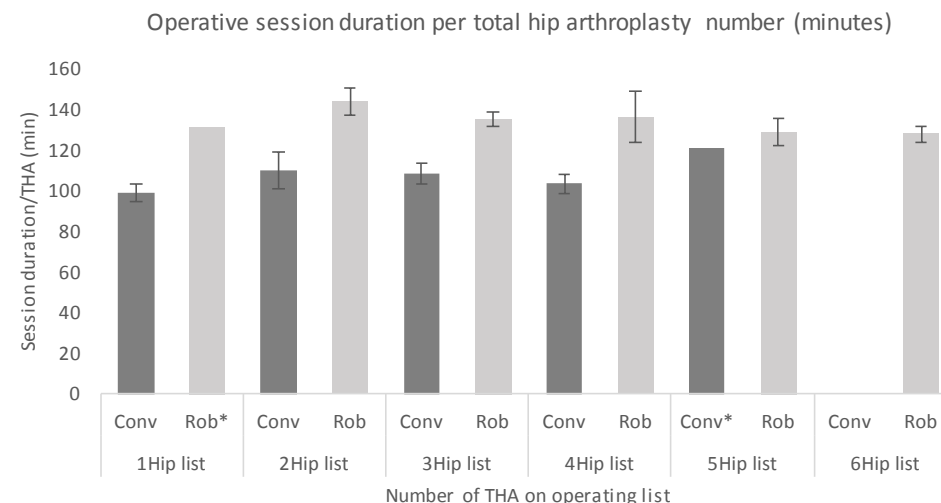


Figure 2: The average time for a case according to the workload

