INTRODUCTION
Obesity contributes to a higher rate of osteoarthritis which may lead to total hip arthroplasty (THA). Literature describes a greater risk for perioperative complications for these patients. Short stems are becoming common in THA but it is not clear if they are suitable for obese patients.

OBJECTIVES
Aim of this prospective multicenter study was to follow up and compare the clinical and radiological outcome in obese, overweight and normal weight patients who received a cementless short stem hip prosthesis.

METHODS
- Data were collected peri- and postoperatively up to 24 months.
- Patients were operated in 5 clinics
- All patients received the optimys short stem
- Patients were divided into 3 BMI classes

RESULTS

Patients:

<table>
<thead>
<tr>
<th>Class</th>
<th>BMI</th>
<th>N</th>
<th>Age (range)</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt; 25</td>
<td>normal weight</td>
<td>144</td>
<td>66.7 (28-91)</td>
</tr>
<tr>
<td>2</td>
<td>25 – 30</td>
<td>over weight</td>
<td>207</td>
<td>65.9 (36-88)</td>
</tr>
<tr>
<td>3</td>
<td>&gt; 30</td>
<td>obese</td>
<td>132</td>
<td>62.3 (33-87)</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td>483</td>
<td>65.1 (28-91)</td>
</tr>
</tbody>
</table>

% | Class 1 | Class 2 | Class 3 |
| Charnley Score | A | 47.9 | 53.1 | 44.7 |
| B | 45.1 | 42.0 | 44.7 |
| C | 6.9 | 4.8 | 10.6 |

Diagnosis
- Primary osteoarthritis | 72.9 | 78.3 | 73.5 |
- Secondary osteoarthritis | 13.9 | 9.7 | 13.6 |
- Dysplasia | 5.6 | 5.3 | 7.6 |

Approach anterolateral | 77.1 | 74.4 | 78.8 |
MIS technique performed | 97.2 | 93.7 | 94.7 |
Duration of surgery (min) | 49.9 | 53.4 | 60.6 |

Standard vs lateral stem | 50.0 / 50.0 | 59.4 / 40.6 | 53.0 / 47.0 |

Complications and revisions

% | Class 1 | Class 2 | Class 3 |
| Intraop. complications | None | 95.1 | 96.6 | 95.5 |
| Fracture of femur or trochanter | 1.4 | 1.5 | 1.6 |

Postop. complications
- Haematoma / seroma | 0.7 | 3.4 | 3.0 |
- Wound healing disorder | 0.0 | 0.5 | 0.8 |
- Infection with inlay revision | 0.0 | 0.5 | 0.8 |
- Aseptic loosening | 0.0 | 0.0 | 0.8 |
- Mayor systemic compl. (embolism, thrombosis) | 0.0 | 0.0 | 2.5 |

Stem revision
- Aseptic loosening | 0.0 | 0.0 | 0.8 |
- Periprosthetic fracture | 0.0 | 0.5 | 0.0 |

DISCUSSION AND CONCLUSION

Discussion:
- No stem related problems were detected.
- The stem related results are comparable in all classes.
- Overweight and obese patients have an increased risk for the development of adverse events such as wound healing, infections and systemic complications.
- No significant differences were seen between the classes respective the clinical outcome.
- No significant differences in radiologic findings between the groups, no further subsidence after three months, good stability of the implant.

Conclusion:
- Two-year results of the evaluated short stem are promising and comparable in the three weight classes.
- They go along with the results reported in literature evaluating the outcome of THA in obese patients.
- Wound healing and infections remain the main problem after these surgeries.
- However, further follow up and larger numbers of patients will be necessary to prove the longevity of this implant in obese patients.

Clinical outcome after 24 months:

Radiological outcome:

Stem subsidence

| Class 1 | Class 2 | Class 3 |
| % | 2.8 | 3.4 | 2.3 |
| Range (mm) | 1 - 3 | 1 - 6 | 3 – 4 |

Hypertrophy Zone 3 and/or 5

| % | Class 1 | Class 2 | Class 3 |
| 2.0 | 3.8 | 3.8 |

Slight painless hypertrophy Zone 3 and 5 after 2 years