Transarticular screw fixation is seen as the "gold standard" in instrumented fusion of C1 and C2. However, drawbacks are the necessity of a reduction before instrumentation and a risk of vertebral artery injury. Therefore, C1 lateral mass and C2 isthmic screws are an alternative. The present study assessed the feasibility of C1-2 stabilization with C1 lateral mass and C2 isthmic screws and evaluated quality of life. All data of 35 consecutive patients treated from May 2006 to September 2009 were collected. Patients had C1 lateral mass and C2 isthmic screws. Twenty patients were operated on for traumatic instabilities, six for neoplastic instabilities, five for infectious instabilities and two each for degenerative and congenital instabilities. Sixty-six of 70 C1 screws had an ideal position, while four were placed suboptimal without the need for revision. Twelve of 68 C2 screws were not ideal but acceptable; one screw needed a surgical revision. There was one non-surgery related case of neurological deterioration after multilevel instrumentation. No vascular injuries occurred. Realignment was correct in all patients. After a median follow-up of 12 months, patients showed a reduction of pain, disability and improvements in EQ-5D items. SF36 data compared with a normative population and a historical cohort showed lower levels of function in all domains. C1-C2 instrumented fusion with lateral mass and isthmic screws
is a safe procedure. Sufficient screw position and alignment was possible in all cases. Therefore, at our institution transarticular screws were abandoned in favor of C1 lateral mass and C2 isthmic screws.