Function 10 years after hip fracture

74 patients after internal fixation

Brynjólfur Jónsson[1], Olof Johnell[1], Inga Redlund-Johnell[2] and Ingemar Sernbo[1]

We examined the physical and social function of patients surviving 10 years after internal fixation of a hip fracture. 74 out of 362 patients were alive 10 years after their fracture. In 47 survivors after cervical fracture, secondary hip arthroplasties had been performed in 25, and nails had been extracted in 13. The implants had been removed in 8 of 27 with trochanteric fracture. 58 survivors were interviewed; three fourths were still living in their own homes, with more than half needing no home assistance. However, limitation of activities, caused by the fracture, was experienced by more than one third of the survivors.

Lund University, Departments of Orthopedics[1] and Diagnostic Radiology[2], Malmö General Hospital, S-214 01 Malmö, Sweden
Tel +46–40 331000. Fax –40 336200
Submitted 92-11-17. Accepted 93-05-02

Recent data from Sweden indicate that the 10-year survival after a hip fracture is more than 20 percent (Elmerson et al. 1988, Borgquist et al. 1990). We report the outcome in and the characteristics of patients who have survived as long as 10 years after their hip fracture.

Patients and methods

In 1977, 370 hip fractures were treated in our department. 8 patients had a bilateral hip fracture in 1977 leaving 362 patients for follow-up; 243 were women and 119 men. The mean age of the men was 72 (38–95) years and of the women 78 (33–95) years. 210 fractures were cervical, 147 trochanteric, and 13 subtrochanteric. Cervical fractures had been treated with a four-flanged single nail in 202 cases, and primary Moore arthroplasty in 5 cases. 1 fracture was treated without operation. Trochanteric and subtrochanteric fractures were treated with Ender nails in 135 cases and with a nail and plate in 26 cases.

The medical records of 4 patients were lost and 3 had emigrated. 281 patients had died during the 10-year period, leaving 74 individuals alive to be studied. The survivors were traced and offered a follow-up interview, with radiography of their hip. Patients who had been re-operated on with a hip arthroplasty were not included in the radiographic part of the study. 2 patients had moved from the city, and 14 patients refused to participate, leaving 58 for an interview. Age at the time of the hip fracture in patients still alive after 10 years was 62 (38–84) in the 27 men, and 65 (44–82) in the 47 women.

11 of the fractures in the non-responding group were cervical, 8 had had hip replacements. 6 of the patients who refused were too handicapped or ill to participate, whereas 8 considered themselves as healthy; 9 lived in their own homes.

At follow-up the patients answered questions about social function, such as their ability to walk, shop, communicate and their need for home assistance (Johnell and Sernbo 1986). Pain and handicap caused by the fracture were also evaluated.

Students' *t*-test, chi-square test with Yates' correction, and Fisher's exact test were used.

Results

The majority of the 58 survivors were mentally alert and remembered their postoperative period. Decreased function as a consequence of the fracture was observed in 7/16 men and 11/30 women. However, most patients had a high capacity before the fracture and were mobile at follow-up (Table 1).

4 of the 8 Moore arthroplasties had been converted to total hips. Pain in the hip without evidence of non-union or late segmental collapse was the most common cause of nail extraction. Function in these 13 patients was good at follow-up with all but one living in their own home, 9 needed no walking aids, and 7 were free from hip pain.

In 1988 hip radiography was available in 16/22 of the trochanteric and 20/22 of the cervical fractures. In the trochanteric group, 2 had asymptomatic femoral head collapse, and 1 arthrosis.

Table 1. Function 10 years after a hip fracture

	Men n 21	Women n 37	Cervical n 36	Trochanteric n 22
Living in own home at time of fracture	19	34	34	18
at follow-up	15	27	29	12
No home aid at follow-up	13	22	24	10
Able to do own shopping	11	20	21	9
Walking with 1 cane or less	14	26	29	13
Unlimited walking ability	10	14	14	9
Able to walk outdoors	15	28	28	14
No mental changes	16	30	30	14
No pain at rest	12	24	20	14
No pain on walking	11	22	19	12

Table 2. Secondary operations in 47 cervical hip fractures

Total hip replacement	17
Moore arthroplasty[a]	8
Nail removal only	13
Total	38

[a] 4 of 8 Moore arthroplasties had been converted to total hips

In the cervical group, 4 had head collapse, 2 of whom were symptomatic, and 2 had arthrosis. Adding femoral head collapses to the 25 secondary arthroplasties (Table 2) increased the failure rate to 29/47 fractures.

Discussion

Both functional status (Borgquist et al. 1990) and mortality in our series confirmed what has been reported in other long-term studies. Excessive mortality by 20 percent for hip fracture patients during the first year has been reported, and thereafter similar slopes of the survival curves for the fracture patients and the general population (Alffram 1964, Elmerson et al. 1988, Larsson et al. 1990).

Healing complications occurred in one third of cases 5 years after a cervical fracture, with arthroplasty performed in two thirds of complicated cases (Nilsson et al. 1988). In our series the complication rate after cervical fractures was two thirds after 10 years, and most hips were converted to arthroplasty. Radiographic documentation of necrosis in cases with pain occur late, and patients needing arthroplasty after fracture of the femoral neck should be identified on clinical grounds after early radionuclide scintimetry (Brümmer et al. 1983).

Removal of a single nail after healing of a cervical fracture was common. Nail extraction is a sign of discomfort. 3 patients complained of hip pain at follow-up and had nails removed. This indicates that hip fracture patients do not always seek medical attention, even if they have problems justifying a secondary operation. The same is probably true of pain in patients with femoral head collapse and non-union. It seems justifiable to offer patients regular follow-up examinations after a cervical fracture has healed.

Acknowledgement

Financial support was obtained from the Swedish Medical Research Council, project no. B92-17X-07975-06.

References

Alffram P A. An epidemiological study of cervical and trochanteric fractures of the femur in an urban population. Acta Orthop Scand (Suppl 65) 1964.

Borgquist L, Ceder L, Thorngren K G. Function and social status 10 years after hip fracture. Prospective follow-up of 103 patients. Acta Orthop Scand 1990; 61 (5): 404–10.

Brümmer R, Hansson L I, Mortensson W. A radiographic five-year follow-up of femoral neck fractures. Acta Orthop Scand 1983; 54 (6): 865–71.

Elmerson S, Zetterberg C, Andersson G B. Ten-year survival after fractures of the proximal end of the femur. Gerontology 1988; 34 (4): 186–91.

Johnell O, Sernbo I. Health and social status in patients with hip fractures and controls. Age Ageing 1986; 15 (5): 285–91.

Larsson S, Friberg S, Hansson L I. Trochanteric fractures. Mobility, complications, and mortality in 607 cases treated with the sliding screw technique. Clin Orthop 1990; 260: 232–41.

Nilsson L T, Strömqvist B, Thorngren K G. Nailing of femoral neck fracture. Clinical and sociologic 5-year follow-up of 510 consecutive hips. Acta Orthop Scand 1988; 59 (4): 365–71.