SWEDISH HIP ARTHROPLASTY REGISTER
SUMMARY
ANNUAL REPORT 2006

Since 1979-2006
270000 THR
32000 re-operations (exc Close reductions)

Since 2005-2006
8000 Hemiarthroplasty
300 Re-operations

Eight variables:
1. Pt satisfaction at oneyear FU (VAS score)
2. Pain relief at one year FU (VAS score)
3. Gain in quality of life at oneyear FU (EQ-5D )
4. 90 day mortality
5. Cost per patient(operation)
6. Re-operation with in 2 year
7. Five year implant survival
8. Ten year implant survival

'Case mix' factor (Pt demographics) single argest factor leading to misinterpretation

CASE MIX FACTOR

Pt with primaryOA, age 60-75 = 50-60% lower risk of revision at 2,5 and 10 yFU

Three important case-mix factors
1. Age > 66
2. Female Gender
3. Operation for primaryOA
No positive factors: Revision frequency from 2.1% at 2 yrs to 7.9% at 10 yrs
All positive factors: Revision frequency 0.8% at 2 yrs to 2.1% at 10 yrs
Other factors BMI, intercurrent disease, ethnicity and socioeconomics may also influence outcome.
Therefore, ‘case- mix’ variables is of greatest importance for correct and fair evaluation.

**PRIMARY THR**

During the past 10 years there has been a change in favour of uncemented fixation. Nevertheless, cement is still being used in 86% cups and 84% stems in 2006. All cemented THRs are overwhelming majority. Though their relative proportion have decreased successively since 2001 (91.7%) to 2006 (80.3%). Charnley stem has almost disappeared (only 2 in 2006 in whole of Sweden) chiefly in favour of Lubinus SPII and Exeter stem. Commonest cemented cups Lubinus all poly, Charnley Elite, Exeter duration.
All uncemented prosthesis increased from 7.3% to 9.9% in 2006.
Uncemented cup commonest Trilogy +/- HA (36.6%).
Resurfacing has been used conservatively with a moderate increase.
Reasons:
- Australian register has reported slightly increased risk of revision
- Limited indication

Percentage of Primary THR per fixation type and age (1992-2006)

<table>
<thead>
<tr>
<th></th>
<th>&lt;50yrs</th>
<th>50-59</th>
<th>&gt;75 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cemented</td>
<td>40.7%</td>
<td>64.5%</td>
<td>98.7%</td>
</tr>
<tr>
<td>Hybrid</td>
<td>21.3%</td>
<td>14.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Uncemented</td>
<td>29.4%</td>
<td>14.4%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

But in 2006,
<60 yr: 932 cemented and 903 Uncemented, 261 hybrid performed explaining the tendency to uncemented THR.
>60, Cemented 10,231, Uncemented 245, hybrid 472.
PATIENT UPTO AGE 50 YEARS

1992-2006

52.1% men, 47.9% women

Until 2001, uncemented implant frequency declined but increased subsequently. In 2005 and 2006, the trend continued so that just under half of all implants in this age group were entirely uncemented.

Most important risk for revision except infection was secondary OA owing to childhood disease.

Nevertheless, all-cemented prostheses give a lower risk of revision during the observation period compared with combined group where one or both components were fixed without cement.

Reason for increased use of uncemented

- Introduction of new articulation
- Highly X-linked poly
- Improved liner fixation
- Good long term results for certain stems

However, good results with certain uncemented stems are based chiefly on long-term studies outside Sweden.

Share of stem not revised at 14 years excluding infection cemented: 80.2%, uncemented + hybrid + reverse hybrid: 67.4%. Results diverging at 7-8 yrs.

GENDER PERSPECTIVE:

THR

- Women undergo surgery more often for secondary OA
- Right more common in women
- Cemented THR more common in women; hybrid more often in men. No difference in uncemented and reverse hybrid
- Posterior approach more common in men
- 30% less risk of revision that men
- Women report more pain preop
- Women report lower EQ-5D score at one year (not completely satisfied)
HEMIMASTROPLASTY
Left side more common, this predominance pronounced in women

Prediction of outcome
Charnley category C, female gender and pt with preop anxiety/ depression (permanent anxiety group) demonstrated a significant correlation to poorer outcome
They also had greatest problem in mobility dimension

IMPLANT SURVIVAL 1992-2006
National average: 93% +/- 2%
Kaplan Meier Statistics

REOPERATIONS
Since 2000, reports on close reduction stopped
Aseptic loosening major reason. Peaked in 2002 but since then declined by 15%
Mean time for re-operation
  • Technical reason: 0.2yr
  • Dislocation: 0.7yr
  • Infection: 1.4yr
Hence, half of re-operations occur within 3-17 mths
Percent not revised (all diagnosis and reasons):
All cemented: 88% 75
All Uncemented: 69% 30
All hybrid: 75% 60
All Reverse hybrid: 84% ---

REOPERATION OWING TO DISLOCATION
19 Pts
  • Majority had poorly positioned cps
  • Pt related risk factors i.e. hip fracture and neuromuscular disease
  • Equal distribution between experienced and less experienced surgeons
  • 8 cases revised after one dislocation, 2 cases after 2 dislocations
Must do

- Improved information to pts preop by physiotherapist
- Preop pt selection i.e identify demented patients (contraindication)
- Obligatory prep planning
- Operator must approve prep arrangements before pt prepped
- Positioning guide must use for cups
- Change from 28 to 32mm head for risk pt
- Obligatory to suture post capsule and muscle after posterior approach
- Discuss X-ray on post op ward round regarding component placement to increase awareness
- Should post op dislocation occur, pt must attend ‘dislocation school’ to analyse movement pattern and improve compliance

REOPERATION DUE TO INFECTION

10 Pts
Staph. aureus in 7 and strept in 2

National average: Re-operation at 2 years

Frequency: 1.4%
Infection: 0.5%
Dislocation: 0.6%
Loosening: 0.1%

REVISION

Conservative surgical treatment with irrigation and soft tissue revision is now being chosen to a larger extent and may be successful if performed early.
Risk of re-operation

- First revision: 15%
- More that 2 revisions: 48.2%

Inflammatory joint disease sequelae of childhood disease and secondary OA following fracture biggest risk for re-operation
During 2006, revision rate for all ncemented and reverse hybrids increased
Regarding all uncemented prosthesis, problems of wear and osteolysis may be one explanation since majority (84%) were performed in consequence of mechanical complication.

Overall, risk of revision plateau7-10 yr following primary operation.

Incidence of fracture is constant at 5-6% up to 10 yrs and then increases.

Cemented prosthesis gives smallest no. Of revisions for all diagnoses long term 70000 cemented prosthesis; 27 yr survival of 77.3%

**Age group <50 yrs**, women have poorer result. For both genders results improve if one uses cemented fixation.

**50-59yrs**: survival equal for cemented and uncemented but 4.5% worse when hybrid

**60-75yr**: all cemented preferred.

Increasing age at first revision reduced risk for further revision. Risk reduction 0.97% per year.

**Percentage not revised**

1992-2006

Lubinus SPII 92.2
Charnley 87
Exeter Polished 89.3
Exeter duration 8 yr fu 96.6% survival

Trilogy HA: 10yr 96.4%
BHR: 5 yr 98.2%

**Younger than 30**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>1992-2006</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cemented</td>
<td>75</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Uncemented</td>
<td>64</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Hybrid</td>
<td>70</td>
<td>63</td>
<td></td>
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**50-59**

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<th>Age Group</th>
<th>1992-2006</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cemented</td>
<td>79</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Uncemented</td>
<td>79</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Hybrid</td>
<td>75</td>
<td>72</td>
<td></td>
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**60-75**

<table>
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<th>Age Group</th>
<th>1992-2006</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cemented</td>
<td>85</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Uncemented</td>
<td>82</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Hybrid</td>
<td>80</td>
<td>84</td>
<td></td>
</tr>
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</table>
>75
All cemented 92 95

**Combination survival**

**CUP (STEM)**

- Exeter all Poly (Exeter polished) 92.6% at 10 yr
- Lubinus all Poly (Lubinus SPII) 96.3% at 10 yr
- Charnley (Exeter polished) 97.3% at 10 yr

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**ENVIRONMENTAL AND TECHNOLOGICAL PROFILE**

Posterior approach most common
Palacos + G commonly used cement

<table>
<thead>
<tr>
<th>Approaches</th>
<th>Share of revision</th>
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<tbody>
<tr>
<td>MIS/2</td>
<td>7.3%</td>
</tr>
<tr>
<td>MIS/1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Anterior pt on back (Hardinge)</td>
<td>1.5%</td>
</tr>
<tr>
<td>Moore</td>
<td>1.4%</td>
</tr>
<tr>
<td>Anterior pt on side (Gammer)</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

**Cementing technique**

Use of brushes has declined for 6th year in succession in primary surgery
Use of proximal plug lowers the risk of aseptic loosening. Still some institutes do not use it for fears of embolism. Use of pulse lavage has known to reduce this risk
Proximal plug should be avoided in Hemiarthroplasty
Survival with use of proximal plug: 86.6 at 15 yrs, without proximal plug 85.1% at 15 yr

**90-DAY MORTALITY**

2003-2006: average 8% in Sweden
HEMIIARTHROPLASTY REGISTRATION 2005-6

New concept
3800 in 2005, 4137 in 2006
Out of which 3.7% have been reoperated on
51% of these revisions were for dislocations, 31% for infection, 11% periprosthetic

The most important factor is choice of uncemented stem, which increases the risk of revision by four times. Of 30 stems revised, 22 were Moore prosthesis. It should not be used even in a patient with short life expectancy.

SUMMARY

- ‘Case-mix’ importance
- >50 yrs: Delay Surgery in case of sequelae to childhood disease. These pts to be centralised to units with specific competence. All cemented prostheses give better results in the younger pt group.
- Gender perspective: Women more satisfied than men post op
- ‘Socket Wall addition’: Limit the use to cases where a more extensive replacement for various reasons be considered unsuitable

Current trend: Towards uncemented implants
Sweden has lowest reported re-operation rate in world due to the registry saving SEK 1 – 1.5 billion during last 10 yr.

Sujit Kadamba nde