RISK ANALYSIS IN FIRST TIME SHOULDER DISLOCATION COMPARED WITH MULTIPLE DISLOCATIONS: PROSPECTIVE STUDY ON ARTHROSCOPIC BANKART REPAIR

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FIRST TIME SHOULDER DISLOCATION:
RISK ANALYSIS TO AVOID MULTIPLE DISLOCATIONS
Gleno-humeral first time dislocation

*dogma: conservative treatment*

- relocation w/wo general anesthesia
- immobilization with sling device

recurrence: acquired instability pathology

analysis with comparative, prospective, randomized studies

verify!
RECURRENTE

G-H factors influencing recurrence in gleno-humeral first time dislocation
#1 G-H first time dislocation’s risk factor: pt.’s age

Hovelius (JBJS-a, 1987) #1 risk factor: age (not considered contraindication)
- >22 yy: >55% recurrences
- 22-29 yy: >37% recurrences
- 30-40 yy: >12% recurrences

Walton (AJSM, 2002) “current concept”: risk at 2 age peak
- >20 yy: 70% recurrences
- >60 yy: 65% recurrences

Kralinger (AJSM, 2002) age 21-30yy: only risk factor

Hattrup (JSES, 2001) age: one of the 5 factors with a negative influence on results
ACTIVITY

#2 G-H first time dislocation risk factor:
overhead activity and sports $\implies$ high recurrence rate

Recurrence rate:
- Henry (AJSM, 1982): 95%
- Simonet (AJSM, 1984): 82%
- Wheeler (Arthroscopy, 1989): 92%
- Arciero (AJSM, 1994): 80%
- Miniaci (AAOS, 1999): correlation between sport, age, kind of therapy in determining recurrence
PATHOLOGY

#3 G-H first time dislocation risk factor: variability

Baker (AJSM, 1990)
45 cases G-H first time dislocation:
- 6 pts G-H subluxation, w GHL elongation, wo labral tears
- 11 pts moderate instability, w elongation, partial labral tears
- 28 pts severe instability, w GHL elongation, total labral tears

Habermayer (JSES, 1999)
first time dislocation: after 5 episodes:
- 89% Bankart lesion
- 22% labral tears, GHL lesion
- 33% GHL elongation
- 42% Bankart lesion
- 34% ALPSA lesion
- 53% GHL lesions

DiBerardino (AJSM, 2001): poor tissue quality + recurrent trauma are negative influencing factors on recurrence (12%)
TREATMENT

#4 G-H first time dislocation risk factor: correct therapy
do conservative and physical therapy reduce the risk?

- first time traumatic dislocation
  - Bankart
    - anterior instability
  - Bankart + GHL
    - postero-inferior instability

"circle concept" (Warren)
#4 G-H first time dislocation risk factor: correct therapy

Qstn: do conservative and physical therapy reduce the recurrence risk? Is it the correct first treatment?

Arciero et al. (AJSM, 1994; JSouOrthAs, 1996) big recurrence reduction (12%) in pts. stabilized by scope compared with pts. submitted to a conservative treatment

Bottoni, Arciero et al. (AJSM, 2002) examining 2 groups of pts. the conservative treatment group developed 75% recurrence, the surgical group 11.1%

Kralinger (AJSM, 2002) group of pts. aged 21-30yy: none confirmation on efficacy of standard treatment such as immobilization and phys. therapy in preventing recurrence
TREATMENT

- conservative treatment (Itoi, JSES, 2004)
- surgical arthroscopic repair

Itoi (ASES, 2003, JSES, 2004)
first time dislocation:
Whole 2 groups 20pts. >29yy. 2 groups 11pts.
6pts. (30%) IR group 6pts. (45%) IR group
none (0%) ER group none (0%) ER group

courtesy E. Itoi

Arciero et al. (AJSM, 1994: JSouOrthAs, 1996)
Bottoni, Arciero et al. (AJSM, 2002)
Kralinger et al. (AJSM, 2002)
Habermayer et al. (JSES, 1999)
Baker et al. (AJSM, 1990)
Correct treatment to avoid recurrence risks:

**RATIONALE**
- better tissue
- lesser anatomic damage

should avoid:
- evolution into ALPSA lesion
- deeper and larger Hill-Sachs lesion
- capsular elongation
- evolution into chronic joint instability

the more the dislocation episodes the more the damage to the anatomic joint structures (end-points)
Evaluation prospectively the anatomic lesions differences at the arthroscopic repair in two groups of patients:
- first time dislocation compared to
- multiple dislocations

INCLUSION CRITERIA
patients with good level activity before aged no more 45yy
high level request
no associated lesion
no DJD
### MATERIALS

Anatomic differences in 2 groups of selected patients:
- Minimum f.u. 2 yy.
- All submitted to surgery 2 mo. later the last episode
- Arthroscopic treatment with anchors
- Rowe score scale evaluation

<table>
<thead>
<tr>
<th>Group #1</th>
<th>Group #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>First time dislocation</td>
<td>Multiple dislocations</td>
</tr>
<tr>
<td>13 patients</td>
<td>90 patients (60m., 20f.)</td>
</tr>
<tr>
<td>Average age: 21 (18-24)</td>
<td>Average age: 28 (17-40)</td>
</tr>
<tr>
<td>High functional needs</td>
<td>Main side prevalence</td>
</tr>
<tr>
<td>(Carrier or high level sport)</td>
<td>2 dislocations at minimum</td>
</tr>
<tr>
<td>None shoulder problem before</td>
<td>None shoulder problem before</td>
</tr>
</tbody>
</table>
anatomic differences in 2 groups of selected patients:

**group #1**
first time dislocation

**group #2**
multiple dislocations
anatomic differences in 2 groups of selected patients:

**group #1**
first time dislocation

**group #2**
multiple dislocations
MATERIALS

anatomic differences in 2 groups of selected patients:

- **group #1**
  - first time dislocation

- **group #2**
  - multiple dislocations
MATERIALS

Anatomic differences in 2 groups of selected patients:

Group #1
First time dislocation

Group #2
Multiple dislocations
MATERIALS

anatomic differences in progression of the episodes of dislocation:

All the groups

First time dislocation

2 episodes

4 episodes

6 episodes

< 6 episodes
RESULTS
intra-operative findings and associated injuries:

<table>
<thead>
<tr>
<th>Kind of lesions</th>
<th>group #1</th>
<th>group #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- partial cuff lesions</td>
<td>15,3% (2/13)</td>
<td>14,4% (13/90)</td>
</tr>
<tr>
<td>- rotatory interval</td>
<td>30,6% (4/13)</td>
<td>58,8% (52/90)</td>
</tr>
<tr>
<td>- SGHL</td>
<td>23,1% (3/13)</td>
<td>52,2% (47/90)</td>
</tr>
<tr>
<td>- MGHL / IGH Lehr</td>
<td>38,4% (5/13)</td>
<td>58,8% (53/90)</td>
</tr>
<tr>
<td>- SLAP lesions</td>
<td>53,8% (7/13)</td>
<td>21,1% (19/90)</td>
</tr>
<tr>
<td>- anterior labral</td>
<td>100 % (13/13)</td>
<td>80,0% (72/90)</td>
</tr>
<tr>
<td>- absent</td>
<td>0,0%</td>
<td>18,8% (18/90)</td>
</tr>
<tr>
<td>- Bankart</td>
<td>84,6% (11/13)</td>
<td>63,3% (57/90)</td>
</tr>
<tr>
<td>- inferior labral</td>
<td>30,7% (4/13)</td>
<td>51,1% (46/90)</td>
</tr>
<tr>
<td>- bony lesions</td>
<td>84,6% (11/13)</td>
<td>78,8% (71/90)</td>
</tr>
<tr>
<td>- bony loss</td>
<td>0,0%</td>
<td>36,5% (33/90)</td>
</tr>
</tbody>
</table>
## RESULTS

### Rowe score evaluation:

<table>
<thead>
<tr>
<th>Group #1 Pre-op</th>
<th>Post-op</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>75-51</td>
<td>100-90</td>
</tr>
<tr>
<td>Good</td>
<td>74-51</td>
<td>89-75</td>
</tr>
<tr>
<td>Fair</td>
<td>51-45</td>
<td>75-55</td>
</tr>
<tr>
<td>Poor</td>
<td>46-30</td>
<td>56-45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group #2 Pre-op</th>
<th>Post-op</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>&gt;50</td>
<td>100-90</td>
</tr>
<tr>
<td>Good</td>
<td>&lt;50</td>
<td>89-75</td>
</tr>
<tr>
<td>Fair</td>
<td>&lt;40</td>
<td>75-55</td>
</tr>
<tr>
<td>Poor</td>
<td>40-30</td>
<td>56-45</td>
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DISCUSSION

group #1 first time dislocation
- better tissue: restoration not repair
- Bankart lesion prevalence
- none plication surgery
- high % of SLAP lesions
- homogeneous population
- bony lesions (Hill Sachs), no important loss

group #2 multiple dislocations
- worst tissue quality
- higher % associated lesions compared with #1
- capsuloligament complex laxity
- important labral and rotatory interval lesions
- less homogeneous population
- bony lesions and loss (> 25% glenoid surface, not eng.H-S)
CONCLUSIONS

- first time anterior dislocators at high risk need immediate appropriate stabilization
- surgery suggested
- young motivated patients (>25yy.old)
- high functional request of the joint (work or sport)
- clinical joint instability after the first episode
- MRI evidence of capsulolabral lesion(s)
- less frequency of severe engaging bony loss
- numerous skilled and experienced arthroscopic surgeons have achieved single digit recurrence rates
CONCLUSIONS

when do we suggest immediate arthroscopic stabilization?

- young patients >25yy old
- high functional request of the joint
- MRI evidence of capsulolabral lesions
- joint instability after 1° episode