1. Numbers

- During the first year of reimbursement (nov. 2011-nov. 2012) 264 ablation procedures for concomitant AF were performed in 25 Belgian centers. The second year of reimbursement (nov. 2012-nov. 2013), this number increased to 272 procedures (Fig.1)

Fig.1: Number of ablations for each center.

2. Type of AF

- Approximately half of the patients were in paroxysmal AF.
- A remarkable 10 and 12% of patients were ablated despite the fact that the AF was accepted and only rate control was performed (Permanent AF) (Fig.2)

Fig.2: type of AF
3. Demographics

- The mean age was 68 ± 11 y (2011-2012) and 67 ± 11 y (2012-2013)
- 60% of patients were male

4. Type of surgery

- Approximately 2/3 of the procedures involved mitral valve surgery: 63% (2011-2012) and 61% (2012-2013)

5. Type of ablative device

In 2012-2013:
- Cryo-ablation was used in 26% of cases
- Bipolar RF was used in 71% of cases:
  - Isolated Bipolar RF in 51% (in 1/3 of these patients, a full Cox-Maze IV lesion set was performed only with the bipolar clamp)
  - In respectively 11 and 9% of cases, Cryo or Unipolar RF were used to perform the left isthmus line toward the mitral valve (fig.3)

Fig. 3: type of device

6. Closure of the left atrial appendage (LAA): results for 2012-2013

- Procedures involving the mitral valve:
  - In 50% of these procedures, the LAA was either internally closed or resected.
  - However, in 37% of these procedures, the LAA was left untouched despite the open left atrium and the ablation (half of these were Port-Access procedures were resection of the LAA can be hazardous)
- Procedures NOT involving the mitral valve:
  - In 63% of these procedures, the LAA was either closed externally or resected.
  - Also here, the LAA was left open in 32% of cases (Fig.4).
Closure of the left appendage by means of a purse string suture is known to recanalize and resection can be hazardous (bleeding). The fact that more than 30% of the LAA’s are left untouched despite the ablation, clearly demonstrates the need for an external closure device.

Fig. 4: Closure of the LAA

7. Lesion set: ablation lines used in PAROXYSMAL AF (2012-2013)

- In mitral valve surgery a full lesion set in the left atrium (box+isthmus+LAA-line) was performed in 82% of cases, despite the paroxysmal character of the AF. In 31% of cases, ablation lines were also made in the right atrium. However, this right sided lesion set was very heterogeneous, resulting in only 47% true Cox-Maze IV procedures (Fig.5)
- In non-mitral valve surgery, only PV isolation was performed in 78% of cases.

Fig.5: Ablation lines used in PAROXYSMAL AF

8. Lesion set: ablation lines used in CHRONIC AF (2012-2013)

- In mitral valve surgery a full lesion set (box+isthmus+LAA-line) in the left atrium was made in 91% of cases. In 54% of cases, ablation-lines were also performed in
the right atrium. Again, this right sided lesion set is very heterogeneous, resulting in only 33% true Cox-Maze IV procedures.

- In non-mitral valve surgery, only PV isolation was performed in 42% of cases, despite the chronic character of the AF. The left (+ right) atrium was only opened for additional lines in 48% of cases (Fig.6)

Fig.6: Ablation lines used in CHRONIC AF

9. Complications after ablation

- Ablation for concomitant AF is a save procedure with few cases of complete AV-block requiring pacemaker implantation (2%). A serious bleeding requiring additional surgery occurred in 1% of cases.

10. Rhythm on ECG at discharge (total group 2011-2013)

- A surprising 62% of patients in permanent AF (only rate control) had a sinus rhythm (SR) on ECG at discharge
- Of the long-standing persistent group (>1y), 72 % was in SR (Fig.7).
- These results were obtained with only 49% of patients on cordarone at discharge

Fig.7: Rhythm at discharge
11. Follow-up

- Completion of FU after 6 months was 77% and after 12 months 65%.
- A Holter-monitoring was performed in 58% of patients and a TTE in 69%.
- The Holter-monitoring showed a success rate in paroxysmal AF-patients between 67 and 89% and in chronic patients between 52 and 72%. However, numbers are still too low to draw any conclusions which type of energy source is superior (Fig.8).

Fig.8: results of Holter-monitoring (performed between 6 and 18 months postop.)

<table>
<thead>
<tr>
<th>Type of AF</th>
<th>Type of Surgery</th>
<th>Energy Source</th>
<th>% SR (n/total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paroxismal AF</td>
<td>Mitral Surgery</td>
<td>RF</td>
<td>67% (34/51)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cryo</td>
<td>89% (17/19)</td>
</tr>
<tr>
<td>Non-mitral</td>
<td>RF</td>
<td>89% (39/44)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cryo</td>
<td>40% (2/5)</td>
<td></td>
</tr>
<tr>
<td>Chronic AF</td>
<td>Mitral Surgery</td>
<td>RF</td>
<td>71% (41/58)</td>
</tr>
<tr>
<td></td>
<td>Cryo</td>
<td>52% (12/23)</td>
<td></td>
</tr>
<tr>
<td>Non-mitral</td>
<td>RF</td>
<td>72% (28/39)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cryo</td>
<td>100% (1/1)</td>
<td></td>
</tr>
</tbody>
</table>

12. Impact on oral anticoagulation

- In patients on coumarine preop., the oral anticoagulation was stopped in 33% after 1 year.
- This probably underestimates the success of the ablation since several patients remained on OC for non-arrhythmic reasons (mechanical valve, etc.)