Introduction

Since the number of different techniques of invasive cardiologic treatment has increased, it is necessary to define indications and contraindications of those techniques, where the largest amount of experience has been gathered. In order to identify the predictors for early unfavorable outcome of the procedure, we retrospectively analyzed all coronary angioplasty procedures performed in our clinic. Attention was also directed on the coronary anatomy of the treated patients, and on the post-complication management and outcome of complicated procedures.

Evaluated samples

From April 1986 to December 1989 in the German Heart Institute, Berlin, 1420 patients underwent percutaneous transluminal coronary angioplasty (PTCA).

Five of these patients underwent angioplasty with preexisting cardiogenic shock after acute myocardial infarction. Since particularities in those cases are rather distinct to elective treatment, those cases were evaluated separately in the present study. Three of these patients (who were not acceptable for CABG-surgery because of their coronary anatomy) died; two had undergone emergency bypass surgery.

Of the 1420 cases of PTCA presented in this paper, 1164 patients (= 82%) were men, 256 (18%) were women.

Eighteen of these 1420 patients (1.27%) were eligible for emergency coronary-artery-bypass grafting because of in-lab complications. In the following, this subset is analyzed.

Mean age of these 18 patients (15 male, 3 female) was 58.9 years (+/- 9.0), mean LV-ejection fraction was 56.3 +/- 7.2%. Vessel involvement in these patients was distributed as shown in Table I.

Table I. Evaluated sample: vessel involvement.

<table>
<thead>
<tr>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Vessel disease</td>
</tr>
<tr>
<td>2-Vessel disease</td>
</tr>
<tr>
<td>1-Vessel disease</td>
</tr>
<tr>
<td>1-Vessel disease + LMCA-Plaque</td>
</tr>
</tbody>
</table>

18
Procedures

In all but one patient, balloon inflations could be performed, and stenosis dilation was primarily successful. In one patient, the coronary artery was perforated by the attempt to open the chronically occluded vessel. Mean number of balloon inflations was 6.4 +/- 3.6, mean duration was 261 +/- 157 s. Inflations as part of the elective treatment action cannot be separated from inflations as part of the complication-handling in every patient.

In 11 patients, one-vessel/one-stenosis dilation was intended; in five patients, two vessels with one stenosis in each vessel was targeted; in two patients a multilesson-dilation in one vessel was intended. In total, 26 stenoses were targeted. The localization and severity of these stenoses are noted in Tables 2-4.

According to frequently used and well defined characteristics of coronary artery stenoses, the morphology of coronary arteries was described as noted in Table 4.

### Table 2. Localization of target stenoses.

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Prox.</th>
<th>Med.</th>
<th>Dist.</th>
<th>1st Branch</th>
<th>2nd Branch</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAD</td>
<td>8</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>LCX</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>RCA</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Stenoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26</td>
</tr>
</tbody>
</table>

Patients, n = 18

### Table 3. Severity of stenoses (pre-PTCA).

<table>
<thead>
<tr>
<th>Severity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occluded (100%)</td>
<td>1</td>
</tr>
<tr>
<td>99%</td>
<td>1</td>
</tr>
<tr>
<td>90%</td>
<td>19</td>
</tr>
<tr>
<td>75%</td>
<td>4</td>
</tr>
<tr>
<td>&lt;75%</td>
<td>1</td>
</tr>
</tbody>
</table>

Stenoses 26

Patients, n = 18

### Table 4. Stenosis morphology characteristics (pre-PTCA).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch point</td>
<td>12</td>
</tr>
<tr>
<td>Length &gt; 2 lumen diameters</td>
<td>11</td>
</tr>
<tr>
<td>Other stenosis - proximal</td>
<td>6</td>
</tr>
<tr>
<td>Excentricity</td>
<td>5</td>
</tr>
<tr>
<td>Ulcus/rough lumen</td>
<td>3</td>
</tr>
<tr>
<td>Abrupt proximal face</td>
<td>3</td>
</tr>
<tr>
<td>Thrombus</td>
<td>2</td>
</tr>
<tr>
<td>Other stenosis - distal</td>
<td>2</td>
</tr>
<tr>
<td>Diffuse disease</td>
<td>1</td>
</tr>
<tr>
<td>Delayed dye flow</td>
<td>1</td>
</tr>
</tbody>
</table>

n = 18 patients, 26 stenoses

Balloon size

Since one of the essentials of the procedure and of its risk for unfavorable outcome is the question of an adequate balloon size, in all cases a visual retrospective analysis was