

1. Albertinen Kolloquium

Behandlung der koronaren Herzkrankheit - *State of the Art*

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koronaren Herzkrankheit
- *State of the Art*



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Ergebnisse

Operations-Verfahren	Anzahl	Letalität	
		Albertinen	BRD*
Herzoperationen Albertinen 07/1991 bis 12/2004	15.286	1,3 %	
↳ Isolierter koronarer Bypass	9.413	0,8 %	2,5 %
↳ Isolierte Aortenklappe	2.021	1,2 %	3,0 %
↳ Isolierte Mitralklappe	804	1,4 %	3,6 %
↳ Aortenklappe mit Bypass	1.405	2,6 %	5,6 %

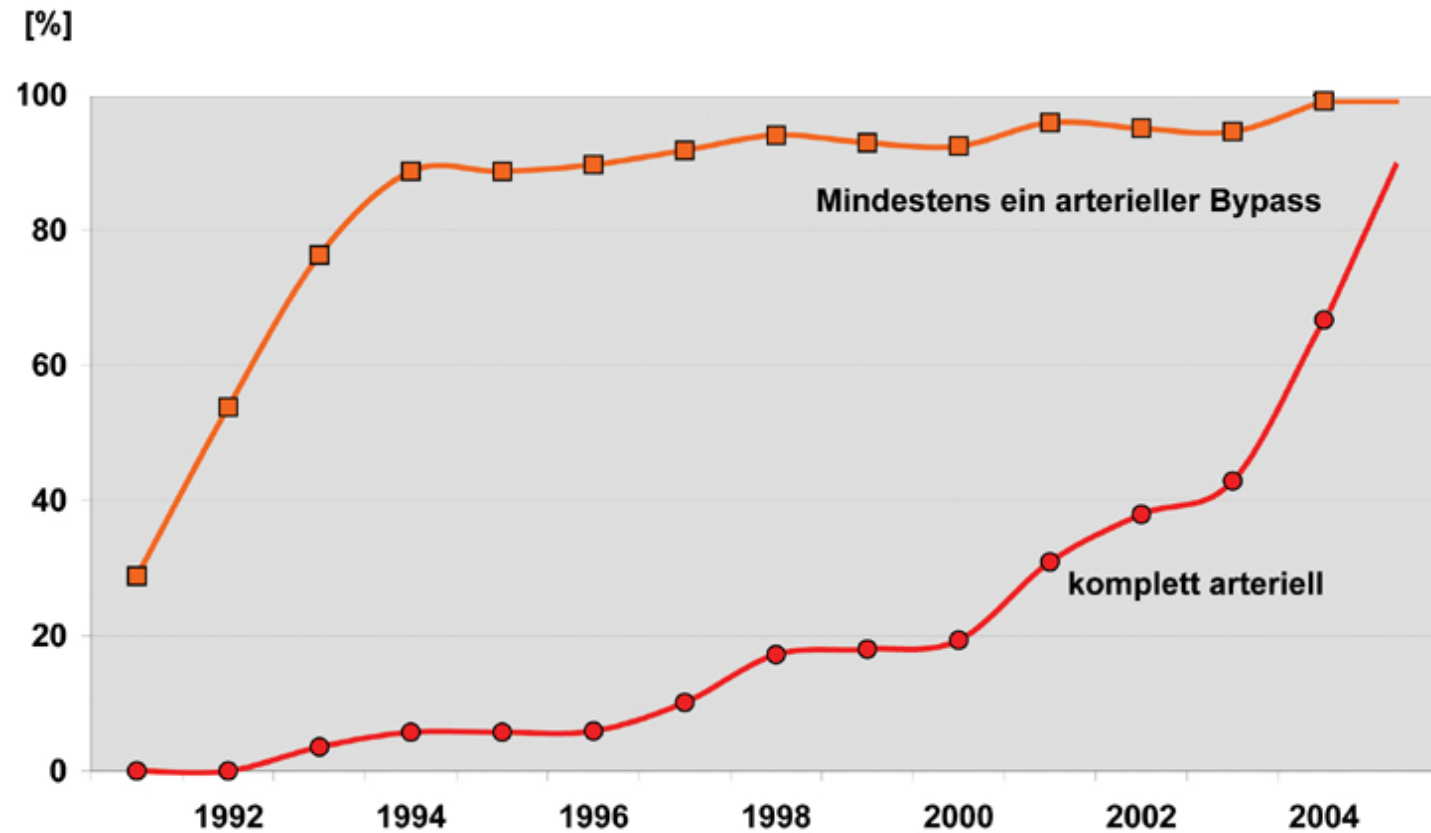
* BQS-Qualitätsreport 2003, Bundesdurchschnitt



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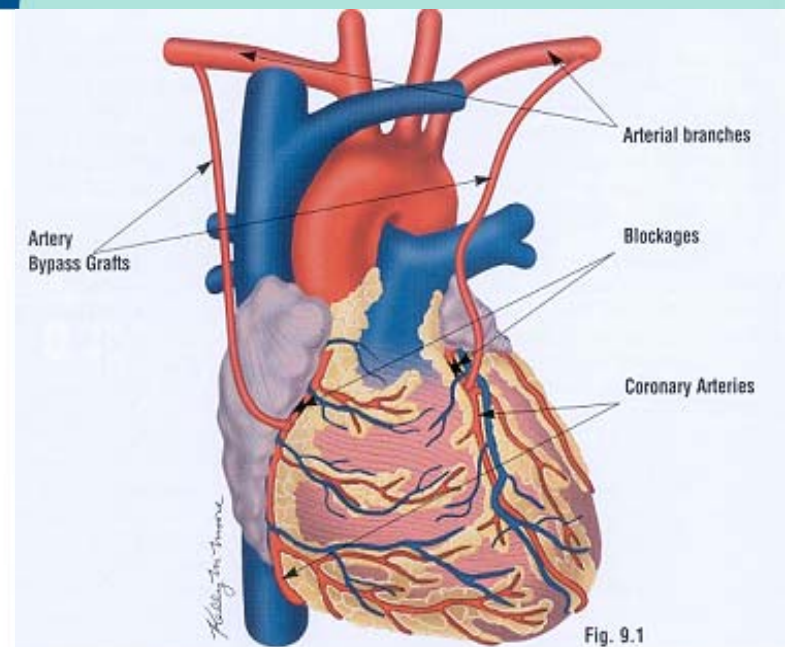
Komplett arterielle Revaskularisation



Komplett arterielle Revaskularisation

Die Komplett arterielle Revaskularisation unter Verwendung beider skelettierend präparierter Aa. mammae als In-situ-Bypasses

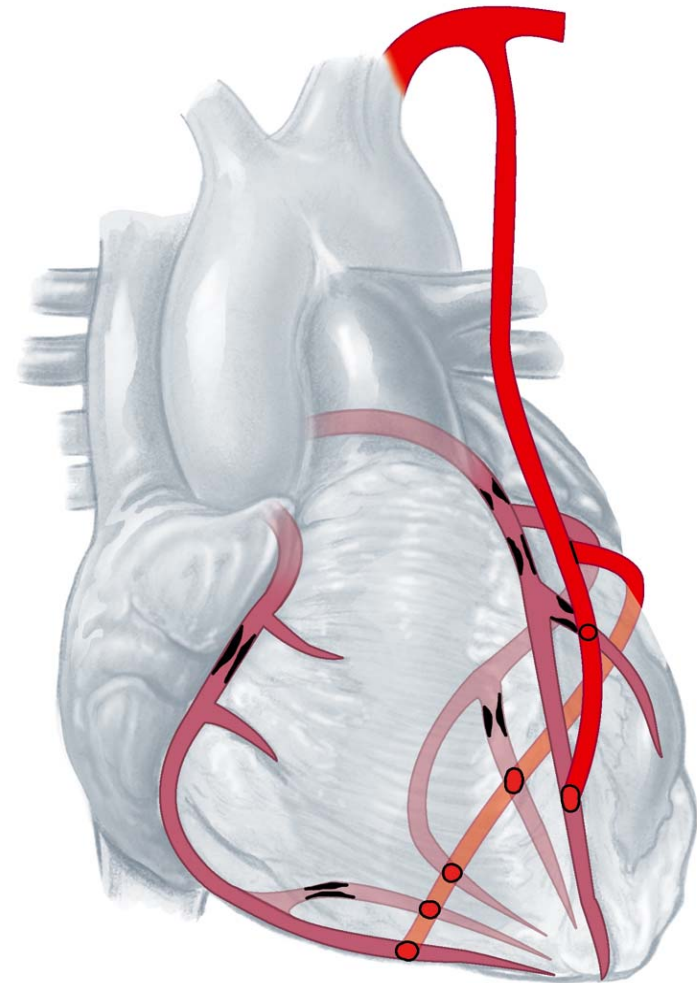
- Überlegene Offenheitsraten im Vergleich zu Venenbypasses



Komplett arterielle Revaskularisation

Die Komplett arterielle Revaskularisation unter Verwendung beider skelettierend präparierter Aa. mammae in T-Graft-Technik

- Überlegene Offenheitsraten im Vergleich zu Venenbypasses
- T-Graft-Technik ermöglicht die Versorgung aller Koronargefäße mittels beider Aa. mammae



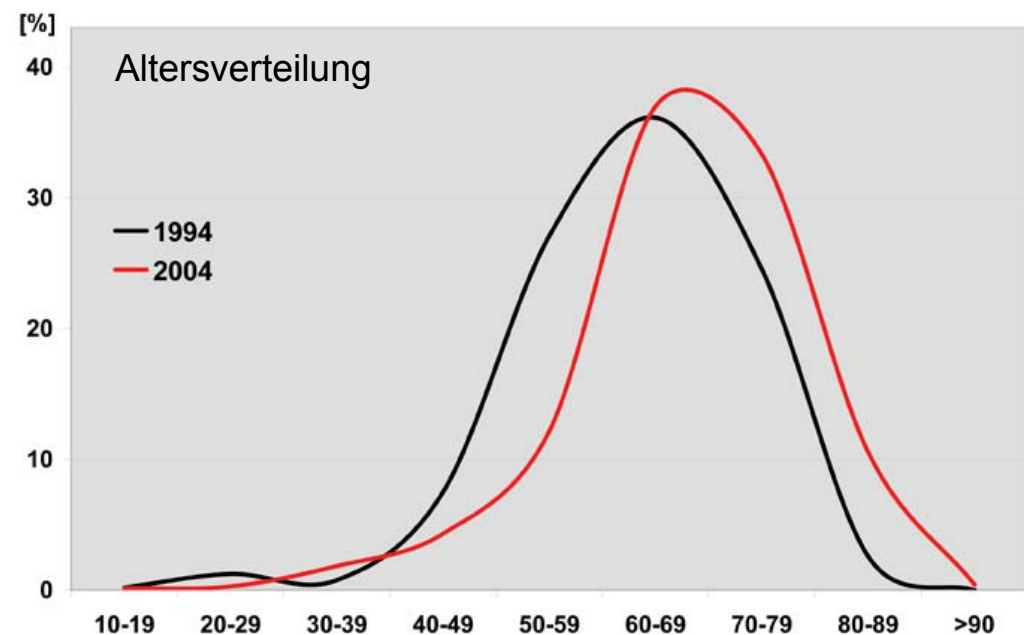
Komplett arterielle Revaskularisation

Allgemeine Probleme

Kostendruck

Wandel des Patientengutes

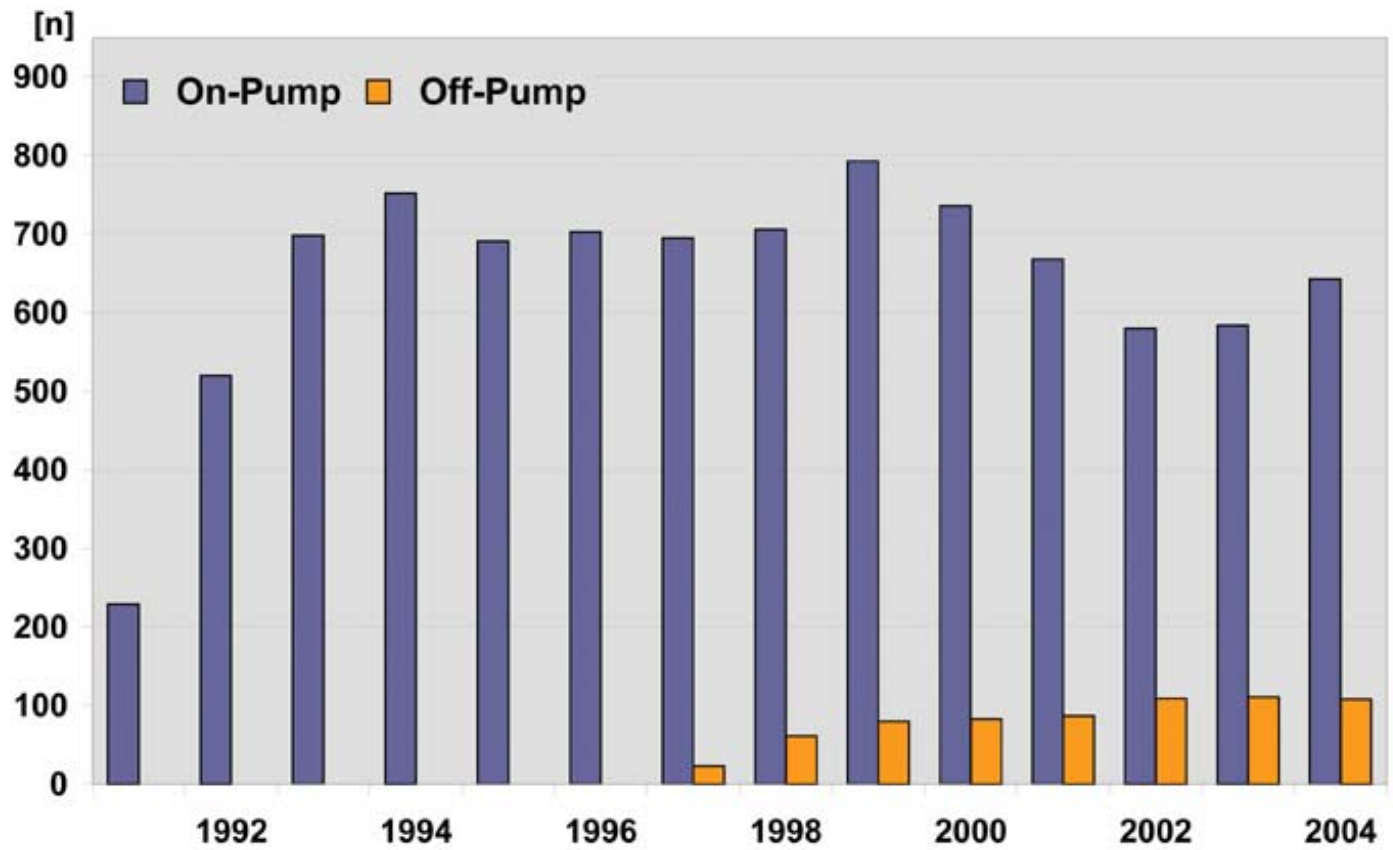
- Zunehmendes Lebensalter
- Zunehmende Begleiterkrankungen
- Zunahme komplexer Koronarläsionen
- Zunahme von Re-Operationen



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Off-pump-Revaskularisation



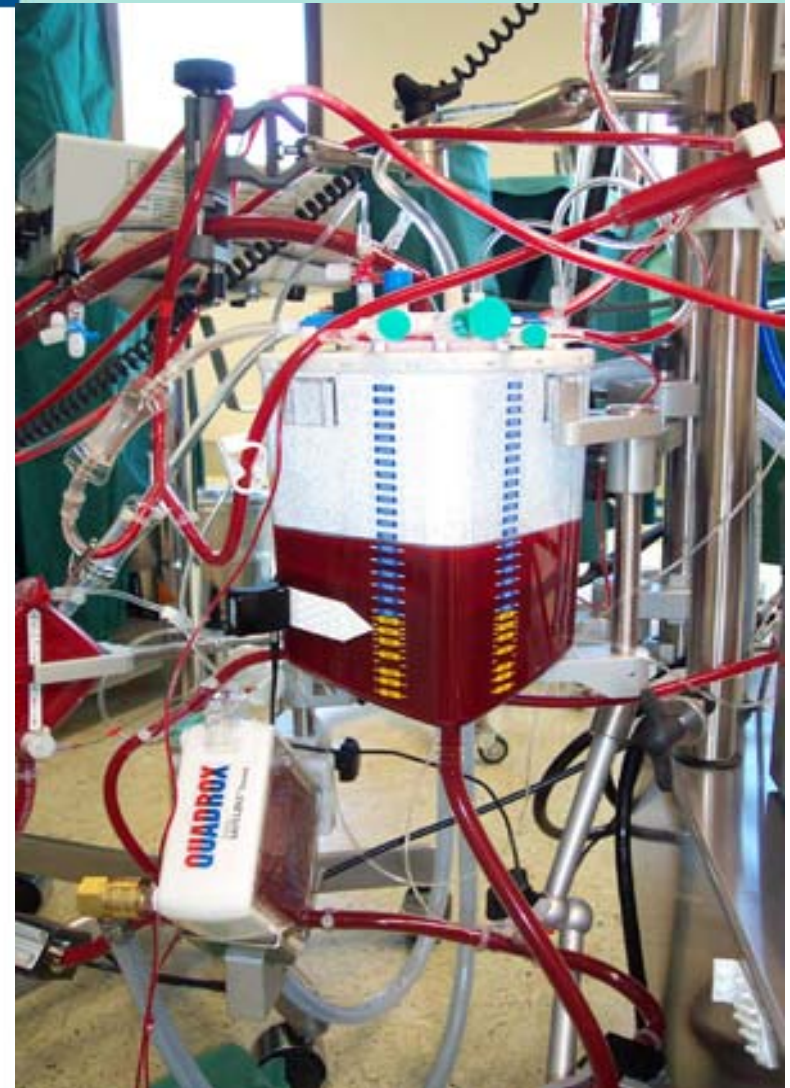
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Off-pump-Revaskularisation

Vorteile durch Vermeidung der HLM

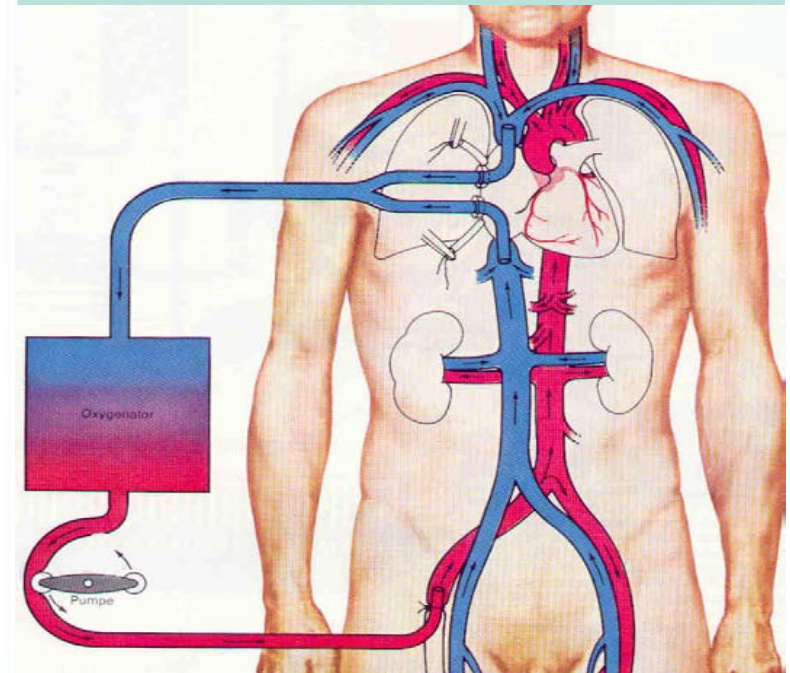
- Keine Komplementaktivierung
- Keine Schädigung von Erythrozyten, Leukozyten und Thrombozyten
- Keine Gerinnungsaktivierung
- Weniger Blutungskomplikationen
- Weniger Infektionen



Off-pump-Revaskularisation

Vorteile durch Vermeidung der HLM

- Keine Partikelembolisation,
da keine Kanülierung der Aorta ascendens
- Weniger neurologische
und neuropsychiatrische Komplikationen
- Keine Verschlechterung
von präexistenten Organdysfunktionen



Off-pump-Revaskularisation

Zeitraum

Jan 1997 – September 2001

Patientenzahl

n = 296 (m/w : 234/62)

Alter

61 Jahre (37-87 Jahre)

Koronarbefund

Isolierte LAD-Stenose n = 121

2-Gefäß-Erkrankung n = 91

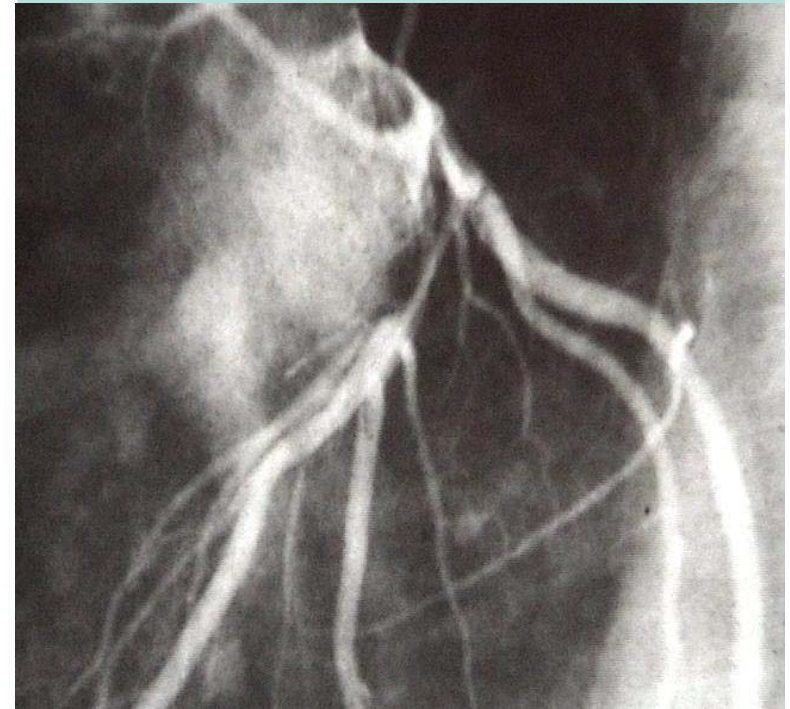
3-Gefäß-Erkrankung n = 84

Hauptstamm-Stenose

n=18

LVEF < 45%

n=19



Riess FC et al. Ann Thorac Surg 66: 1076 - 1081, 1998.

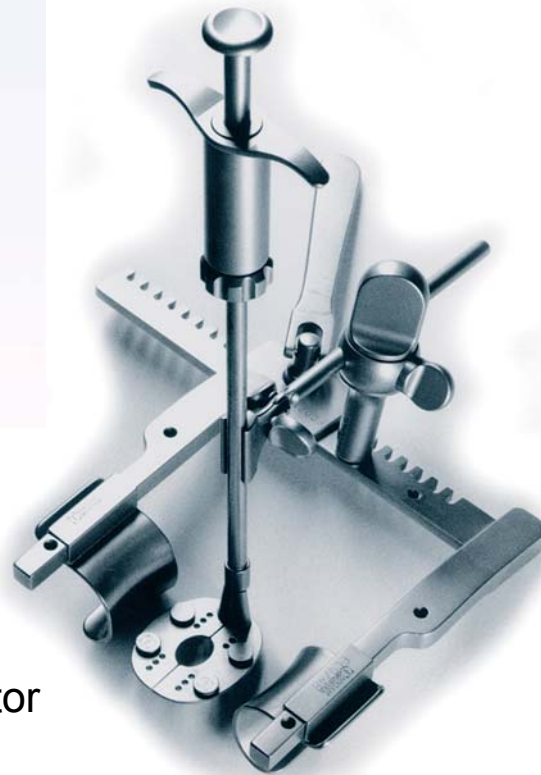
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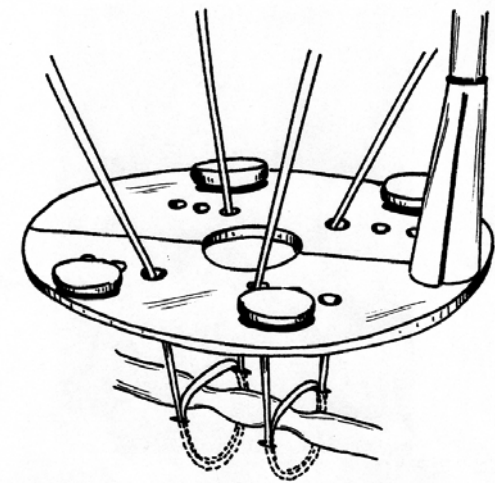
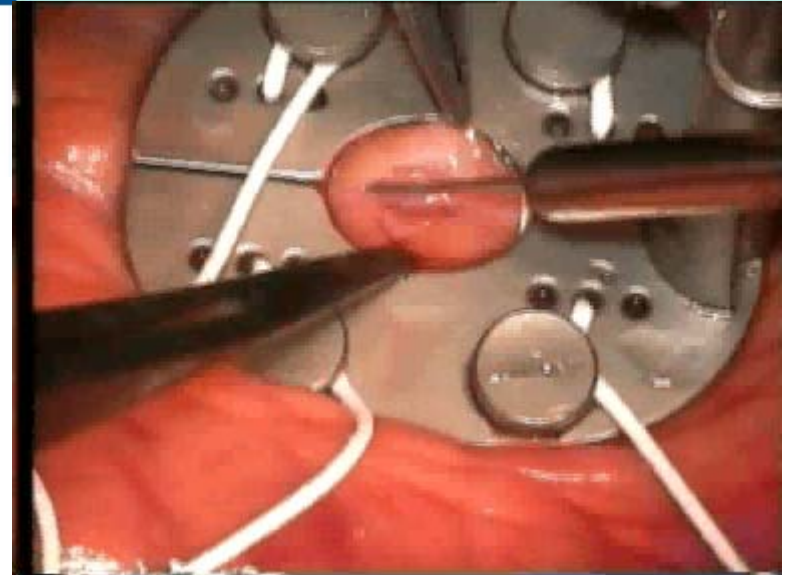
Off-pump-Revaskularisation



Partielle inferiore
Sternotomie



MidCOAST-Stabilisator



Riess FC et al. Eur J Cardio-thorac Surg, 15: 206-208, 1999.



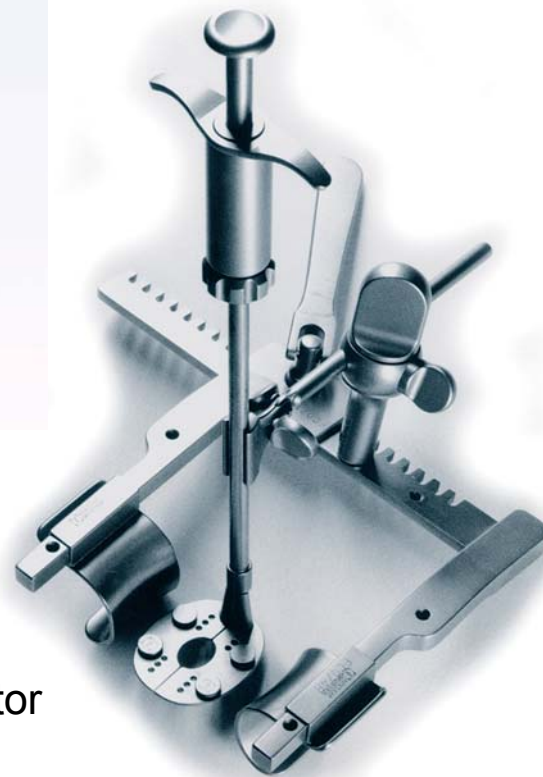
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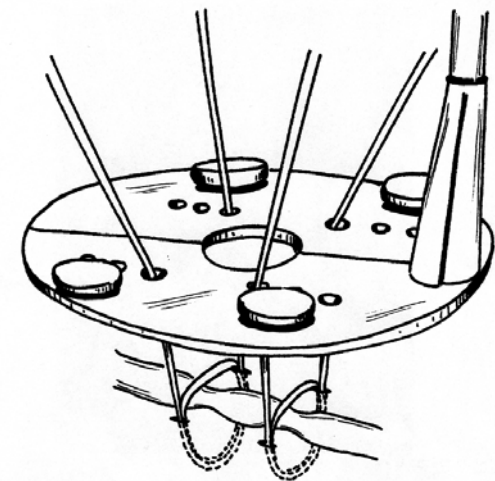
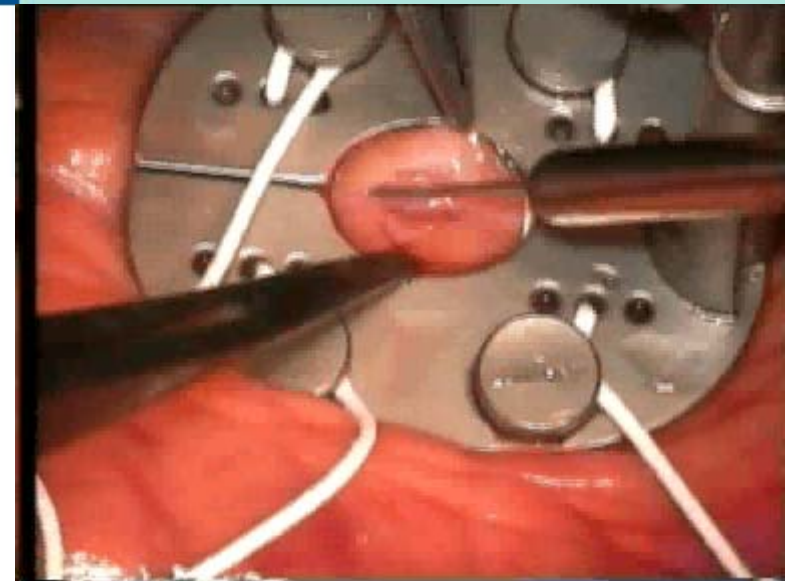
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Partielle inferiore
Sternotomie



MidCOAST-Stabilisator



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Off-pump-Revaskularisation

Begleiterkrankungen n=64/296

Niereninsuffizienz	n = 31
Malignome	n = 21
Diabetes mellitus (insulinpflichtig)	n = 19
COPD	n = 16
Neurologische Erkrankungen	n = 12
Schwere Aorta asc.-Verkalkungen	n = 12
Arteria carotis-Stenosen	n = 5
Morbus Bechterew	n = 3
Chron. Pankreatitis	n = 2
Amyloidose	n = 1
Z.n. Lungenembolie	n = 1

Riess FC et al. Ann Thorac Surg 66: 1076 - 1081, 1998.

Riess FC et al. Heart Surgery Forum #2000-34595,3(4):313-318, 2000.



Off-pump-Revaskularisation

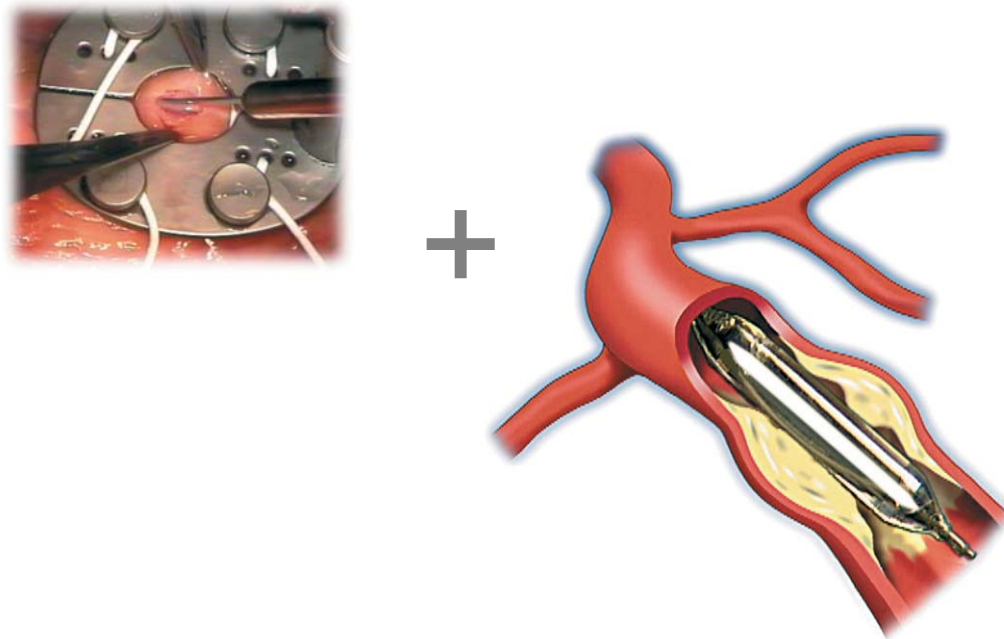
Ergebnisse

Mortalität (30 Tage)	n=2/296
Konversion zu CPB	n = 5
LAD-Okklusion	17± 8 min
Angiografie	n = 162 / 296
Offener LIMA-Bypass	n=161
LIMA-Dissektion	n=1



Hybrid-Revaskularisation

Kombination von minimal invasivem **LIMA-LAD Bypass & PTCA** von zusätzlichen Koronarläsionen

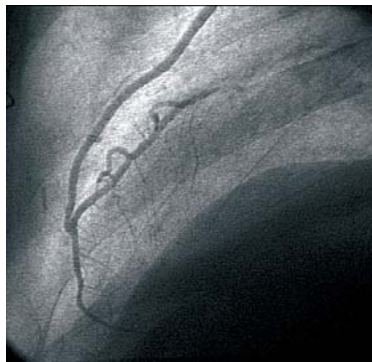


Riess FC et al. Ann Thorac Surg 66: 1076 - 1081, 1998.
Riess FC et al. Ann Thorac Surg 73:1849-55, 2002.

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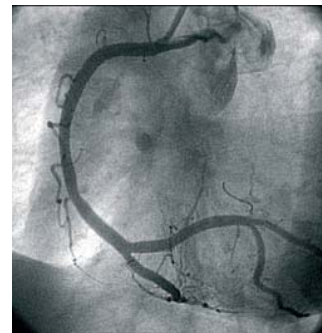
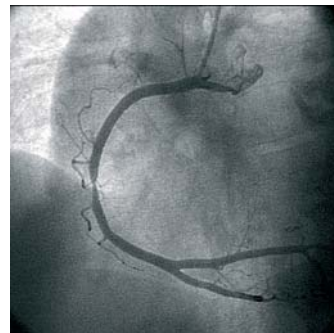
Behandlung der koronaren Herzkrankheit - *State of the Art*

Hybrid-Revsakularisation



LIMA-LAD-Bypass
Darstellung

PTCA/Stenting
RCA-Stenose



Riess FC et al. Ann Thorac Surg 73:1849-55, 2002.



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Coronary Hybrid Revascularization from January 1997 to January 2001: A Clinical Follow-Up

Friedrich-Christian Riess, MD, Ralf Bader, MD, Peter Kremer, MD, Clemens Kühn, MD, Joachim Kormann, MD, Detlef Mathey, MD, Sina Moshar, MD, Thilo Tuebler, MD, Niels Bleese, MD, and Joachim Schofer, MD

Heart Center Hamburg, Albertinen-Krankenhaus, Departments of Cardiac Surgery, Cardiac Anesthesiology, and Cardiology, Hamburg, and Center for Cardiology, Hamburg-Othmarschen, Germany

Background. Hybrid revascularization (HyR), combining minimally invasive left internal mammary artery (LIMA) bypass grafting to the left anterior descending coronary artery (LAD) and catheter interventional treatment of the remaining coronary lesions, avoids the disadvantages associated with cardiopulmonary bypass (CPB). We investigated the clinical follow-up of 57 patients with multivessel disease undergoing this procedure in the last 4 years.

Methods. Between January 1997 and January 2001, 57 consecutive patients (41 men and 16 women, aged 65.7 ± 7.9 years) with coronary artery disease (two-vessel, $n = 34$; three-vessel, $n = 23$) were treated with off-pump LIMA-to-LAD bypass combined with balloon angioplasty and stenting of the remaining significantly obstructed ($> 50\%$) coronary vessels. Clinical follow-up data included a early postoperative and a 6-month control angiography and a patient interview in January 2001.

Results. All patients underwent LIMA-to-LAD bypass-grafting and balloon angioplasty in 72 coronary lesions without procedural-related complications. However, one early LIMA bypass occlusion was documented during

coronary angiography. Postoperatively no deterioration of preexistent organ dysfunction was observed in any patient. The mean follow-up was 100.7 ± 37.9 weeks in 55 of 57 patients (97%). Control angiography 6 months after HyR ($n = 34$) revealed a patent LIMA bypass in 33 patients and 8 in-stent restenoses ($> 50\%$) in the coronary arteries that were treated interventionaly by re-PTCA ($n = 6$) or by conventional CABG ($n = 1$). In 1 patient medical treatment resulted in significant reduction of angina so no further intervention was considered necessary. After HyR 1 patient died 18 months later of an intracerebral hemorrhage. All other patients are alive and doing well.

Conclusions. Our results indicate that in selected patients with multivessel disease including left main stem stenosis HyR is an effective and secure procedure with excellent early and good midterm results. Especially elderly patients with severe concomitant diseases appear to benefit from this approach by avoiding CPB.

(Ann Thorac Surg 2002;73:1849-55)

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Annals of Thoracic
Surgery, 2002

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Background. Hybrid revascularization using minimally invasive left internal mammary artery (LIMA) bypass grafting to the left anterior descending coronary artery (LAD) and catheter-based percutaneous coronary intervention of the remaining coronary lesions offers the advantages associated with cardiac bypass surgery and the advantages of percutaneous coronary intervention (PCI). We investigated the clinical outcomes of hybrid revascularization in patients with multivessel disease under the current standard of care in the last 4 years.

Methods. Between January 1997 and January 2001, 57 consecutive patients (41 men and 16 women, mean age 65.7 ± 7.9 years) with coronary artery disease (34; three-vessel, n = 23) were treated with LIMA-to-LAD bypass combined with PCI of the remaining diseased coronary vessels. Data included a early postoperative control angiography and a patient interview.

Results. All patients underwent LIMA bypass grafting and balloon angioplasty in the remaining diseased coronary vessels without procedural-related complications. Early LIMA bypass occlusion was

Patientenkollektiv n=57

Alter 65,7 ± 7,9 Jahre (46 - 86 Jahre)

72 Koronarstenosen dilatiert / gestentet

Klinisches Follow-Up (97%): 100,7±37,9 Wochen

6-Monats Follow-Up durch Angiografie n = 34 (60%)

In-Stent Restenose (>50%) n = 8

Zusätzliche neue Stenose n = 1

Re-Intervention Angioplastie n = 6

ACVB-Operation n = 1

Mortalität: n=1 (intracerebrale Blutung, 18 Monate postop.)

Annals of Thoracic Surgery, 2002

Riess FC et al. Ann Thorac Surg 73:1849-55, 2002.

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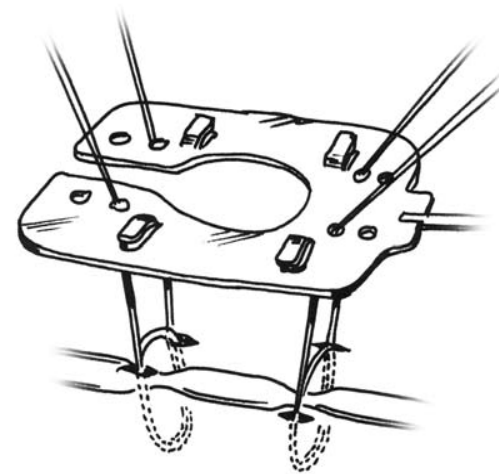


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Komplette arterielle Off-pump- Revaskularisation

Stabilisatorplattform



Riess FC et al. www.hsforum.com/vol7/issue1/2003-13333.html, 2003.

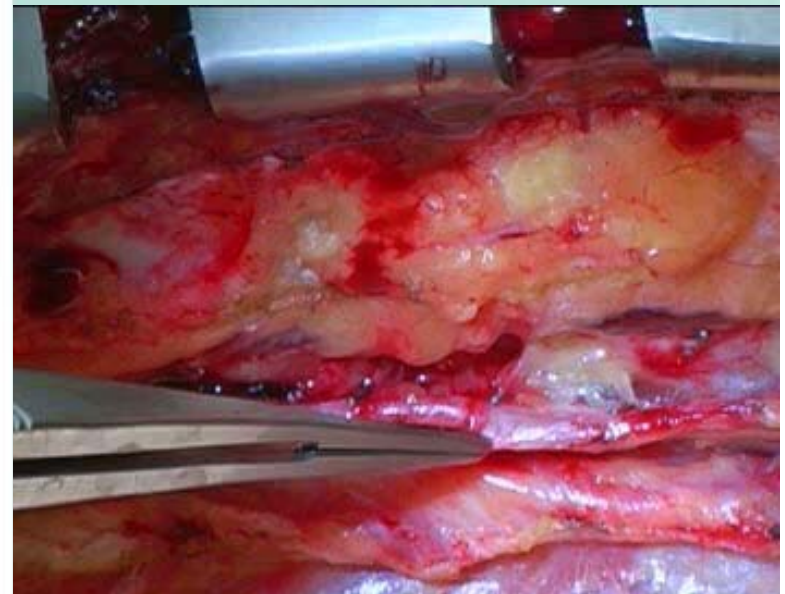


Komplette arterielle Off-pump- Revaskularisation

Retrospektive Off-pump-Studie von Patienten mit (A) und ohne (B) Begleiterkrankungen

Patienten n= 504 (22% weiblich)
Zeitraum Jan 1997 – Jan 2004

	Gruppe A	Gruppe B
Patienten [n]	235 (47%)	269 (53%)
Alter [Jahre]	68 (24-91)	63 (35-89)



Riess FC et al. The Heart Surgery Forum, 2005, submitted.

Komplette arterielle Off-pump- Revaskularisation

Retrospektive Off-pump-Studie von Patienten mit und ohne Begleiterkrankungen

Begleiterkrankungen	n = 235/504
Diabetes (Insulin-pflichtig)	n = 94
Niereninsuffizienz	n = 77
Neurologische Erkrankung	n = 61
COPD	n = 44
Aorta-ascendens-Verkalkung	n = 42
Bösartige Erkrankungen	n = 39
Akuter Myokardinfarkt	n = 16

Riess FC et al. The Heart Surgery Forum, 2005, submitted.



Komplette arterielle Off-pump- Revaskularisation

**Retrospektive Off-pump-Studie von Patienten mit
und ohne Begleiterkrankungen**

	Gruppe A	Gruppe B	p-Wert
Anastomosen [n]	1,7 (1-5)	1,5 (1-5)	0,02
Konversion [n]	5 (2,5%)	0	n.s.
Mortalität (30 d)	1,3%	0,4%	n.s.
Nierenversagen	0,4%	0,4%	n.s.
Insult	0,4%	0,4%	n.s.
Myokardinfarkt	0,4%	0,4%	n.s.

Riess FC et al. The Heart Surgery Forum, 2005, submitted.



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