

## 10 Literaturverzeichnis

1. AbuRahma AF, Richmond BK, Robinson PA, Khan S, Pollack JA, Alberts S. Effect of contralateral severe stenosis or carotid occlusion on duplex criteria of ipsilateral stenosis: comparative study of various duplex parameters. *J Vasc Surg* 1995; 22 (6): 761-762
2. Ahlgren A, Hansen F, Sonesson B, Länne T. Stiffness and diameter of the common carotid artery and abdominal aorta in women. *Ultrasound in Med and Biol* 1997; 23 (7): 983-988
3. Alexandrov AV, Vital D, Brodie DS, Hamilton P, Grotta JC. Grading carotid stenosis with ultrasound – An interlaboratory comparison. *Stroke* 1997; 28: 1208-1210
4. Andreesen H, Weskott HP, Leitner ER von. Hochgradige Stenosen der A. carotis interna: B-Flow im Vergleich zu angiographischen Messverfahren. *Ultraschall in Med Sept.* 2001; Sonderheft 1, S89-S90
5. Athanasoulis CA. *Vascular Radiology: Looking into the past to learn about the future.* *Radiology* 2001; 218 : 317-322
6. Avolio AP, Deng FQ, Li WQ, Luo YF, Huang ZD, Xing LF, O'Rourke MF. Effects of aging on arterial distensibility in populations with high and low prevalence of hypertension: comparison between urban and rural communities in China. *Circulation* 1985; 71: 202-210
7. Banafsche R, Riester U, Bettolo W, Banafsche N, et al. Wert der Erfassung von Karotisplaquemerkmale mit B-Bild-Sonographie und farbkodierter Dopplersonographie. *Gefäßchirurgie* 1998; 3: 92-100
8. Blakeley DD, Oddone EZ, Hasselblad V, Simel DL, Matchar DB. Noninvasive carotid artery testing. A meta-analytic review. *Ann Intern Med* 1995; 122 (5): 360-367
9. Bönig L, Weder B, Schött D., Keel A, Nguyen T, Zaunbauer W. Prediction of angiographic carotid artery stenosis indexes by colour Doppler assisted duplex imaging. A critical appraisal of the parameters used. *Eur J Neurol* 2000; 7: 183-190
10. Bonithon-Kopp C, Touboul PJ, Berr C, Magne C, Ducimetière P. Factors of carotid arterial enlargement in a population aged 59 to 71 years. The EVA Study. *Stroke* 1996; 27 (4): 654-660
11. Bortolotto LA, Hanon , Franconi G, Boutouyrie P, Legrain S, Girerd X. The aging process modifies the distensibility of elastic but not muscular arteries. *Hypertension* 1999; 34 (2): 889-892
12. Bowman MW, Cooperberg PL, Harrison PB, Marsh JI, Mallek N. Duplex ultrasound criteria for internal carotid artery stenosis > 70% diameter: angiographic correlation and ROC curve analysis. *Can Assoc Radiol J* 1995; 46: 291-295
13. Bühl A, Zöfel P. SPSS 11. Einführung in die moderne Datenanalyse unter Windows. 8., überarbeitete Auflage. 2002 by Pearson Studium
14. Carpenter JP, Lexa FJ, Davis JT. Determination of duplex doppler ultrasound

- criteria appropriate to the North American Symptomatic Carotid Endarterectomy Trial. *Stroke* 1996; 27: 695-699
15. Corti R, Fayad ZA, Fuster V, Worthley SG, Helft G, Chesebro J, Mercuri M, Badmin JJ. Effects of lipid-lowering by simvastatin on human atherosclerotic lesions: a longitudinal study by high-resolution, noninvasive magnet resonance imaging. *Circulation* 2001; 104 (3): 249-252
  16. Davies KN, Humphrey PR. Complications of cerebral angiography in patients with symptomatic carotid territory ischemia screened by ultrasound. *Neurol Neurosurg Psychiatry* 1993; 56: 967-972
  17. Denarié N, Gariépy J, Chironi G, Massonneau M, Laskri F, Salomon J, Levenson J, Simon A. Distribution of ultrasonographically-assessed dimension of common carotid arteries in healthy adults of both sexes. *Atherosclerosis* 2000; 148: 297-302
  18. Dinkel HP, Moll R, Debus S. Colour flow Doppler ultrasound of the carotid bifurcation: can it replace routine angiography before carotid endarterectomy? *Br J Radiol.* 2001 Jul;74(883):590-4.
  19. Donis J, Graf M, Sluga E. Flußmessungen an den extrakraniellen Karotiden mit Hilfe der Duplex-Sonographie. *Ultraschall* 1988; 9: 216-222
  20. Eliasziw M, Ranklin RN, Fox AJ, Haynes RB, Barnett HJM, for the North American Symptomatic Carotid Endarterectomy Trial (NASCET) Group. *Stroke* 1995; 26: 1747-1752
  21. Eliasziw M, Streifler JY, Fox AJ, Hachinski VC, Ferguson GG, Barnett HJ. Significance of plaque ulceration in symptomatic patients with high-grade carotid stenosis. North American Symptomatic Carotid Endarterectomy Trial. *Stroke* 1994; 25 (2): 304-308
  22. European Carotid Surgery Trialists' Collaborative Group MRC European Carotid Surgery Trial: interim results for symptomatic patients with severe (70-99%) or with mild (0-29%) carotid stenosis. *Lancet* 1991; 337 (25): 1235-1243
  23. Faught WE, Mattos MA, Van Bemmelen PS et al. Color flow duplex scanning of carotid arteries: new velocity criteria based on receiver operator characteristic analysis for threshold stenosis used in the symptomatic and asymptomatic carotid trials. *J Vasc Surg* 1994; 19: 818-828
  24. Golledge J, Greenhalgh RM, Davies AH. The symptomatic carotid plaque. *Stroke* 2000;31:774-781
  25. Grant EG, Duerinckx AJ, El Saden SM, Melany ML, et al. Ability to use Duplex US to quantify internal carotid arterial stenosis: Fact or fiction? *Radiology* 2000; 214: 247-252
  26. Gronhold ML, Nordestgaard BG, Schroeder TV, Vorstrup S, Sillesen H. Ultrasonic echolucent carotid plaques predict future strokes. *Circulation* 2001; 104: 68-73
  27. Hagen B. Invasive or noninvasive angiography? The role of "classical" catheter angiography. *Radiologe.* 1997 Jul;37(7):493-500.
  28. Hankey GJ, Warlow CP, Sellar RJ. Cerebral angiographic risk in mild cerebrovascular disease. *Stroke* 1990; 21: 209-222

29. Hanon O, Luong V, Mourad JJ, Bortolotto LA, Jeunemaitre X, Girerd X . Aging, Carotid Artery Distensibility, and the Ser422Gly Elastin Gene Polymorphism in Humans. *Hypertension* 2001; 38: 1185-1189
30. Hansen F, Mangell P, Sonesson B, Länne T. Diameter and compliance in the human common carotid artery - variations with age and sex. *Ultrasound in Med. and Biol* 1995; 21 (1): 001-009
31. Hirai T, Korogi Y, Ono K, Murata Y, Takahashi M, Suginozawa K, Uemura S. Maximum stenosis of extracranial internal carotid artery: Effect of luminal morphology on stenosis measurement by using CT Angiography and conventional DSA. *Radiology* 2001; 221: 802-809
32. Hood DB, Mattos MA, Mansour A, Ramsey DE, Hodgson KJ, Barkmeier LD, Sunner DS. Prospective evaluation of new duplex criteria to identify 70% internal carotid artery stenosis. *J vasc surg* 1996; 23 (2): 254-261
33. Hosomi N, Mizushige K, Ohyama H, Takahashi T, Kitadai M, Hatanaka Y, Matsuo H, Kohno M, Koziol JA. Angio-converting enzyme inhibition with enalapril slows progress intima-media thickening of the common carotid artery in patients with non-insulin-dependent diabetes mellitus. *Stroke* 2001; 32: 1539-1545
33. Hunink MGM, Polak JF, Barlan MM, O'Leary DH. Detection and quantitation of carotid artery stenosis: efficacy of various Doppler parameters. *Am J Radiol* 1993; 160: 619-625
34. Jmor S, El-Atrozy T, Griffin M, Tegos T, Danjhl S, Nicolaidis A. Grading internal carotid artery stenosis using B-mode Ultrasound (In vivo study). *Eur J Vas surg* 1999; 18: 315-322
35. Johnston CC, Goldstein LB. Clinical carotid endarterectomy decision making. Noninvasive vascular imaging versus angiography. *Neurology* 2001; 56: 1009-1015

36. Jonason T, Henrikssen E, Kangro T, Nilsson H, Ävessby B, Ringqvist I. Stiffness of the common carotid artery in healthy 50-year-old subjects. *Clin Physiol* 1997; 17 (6): 569-577
37. Jung EM, Kubale R, Clevert DA, Lutz R, Rupp N. B-Flow und kontrastmittelverstärkter Power Mode mit Optison - Präoperative Diagnostik der hochgradigen Stenose der A. carotis interna. *Fortschr Röntgenstr* 2002; 174: 62-69
38. Knudsen L, Johansen A, Justesen P, Jorgensen HB. Accuracy of duplex scan of internal carotid arteries. *Eur J Vas Endovasc Surg* 2002; 24: 86-87
39. Koziol JA. Angio-converting enzyme inhibition with enalapril slows progress intima-media thickening of the common carotid artery in patients with non-insulin-dependent diabetes mellitus. *Stroke* 2001; 32: 1539-1545
40. Länne T, Hansen F, Mangell P, Sonesson B. Differences in mechanical properties of the common carotid artery and abdominal aorta in healthy males. *J Vasc Surg* 1994; 20 (2): 218-225
41. Liapis CD, Kakisis JD, Kostakis AG. Carotid Stenosis. Factors affecting symptomatology. *Stroke* 2001, 32:2782-2786
42. Ludwig M, von Petzinger-Kruthoff A, von Buquoy M, Stumpe KO. Intima media thickness of the carotid arteries: early pointer to arteriosclerosis and therapeutic endpoint. *Ultraschall Med.* 2003 Jun;24(3):162-74
43. Lyrer Ph, Bont A, Marugg A, Operschall C, Radü EW. Querschnittsflächenreduktion bei der A. carotis interna Stenose. *Ultraschall in Med.* 1999; 20: 137-143
44. Mannami T, Shunroku B, Ogata J. Potential of carotid enlargement as a useful indicator affected by high blood pressure in a large general population of a Japanese city. The Suita Study. *Stroke* 2000; 31 : 2958-2965
45. Marosi L, Ehringer H. The extracranial carotid artery in a high resolution time ultrasonic imaging system: morphologic findings in healthy young adults. *Ultraschall Med* 1984; 5 (4): 174-181
46. Merode van T, Hick P, Hoeks A, Smeets F, Reneman R. Differences in carotid artery wall properties between presumed-healthy men and women. *Ultrasound in Med. and Biol* 1988; 14 (7): 571-574
47. Moneta GL, Edwards JM, Chitwood RW, et al. Correlation of North American Symptomatic Carotid Endarterectomy Trial (NASCET) angiographic definition of 70% to 99% internal carotid artery stenosis with duplex scanning. *J Vasc Surg* 1993; 17: 152-159

48. North American Symptomatic Endarterectomy Trial Collaborators. Beneficial Effect of Carotid Endarterectomy in symptomatic patients with high-grade carotid stenosis. *N Engl J Med* 1991; 325: 445-453
49. O'Donnell M. Coded excitation systems for improving the penetration of real-time phased array imaging system. *IEEE Trans. UFFC*, 1992; 36: 341-351
50. O'Leary DH, Polak JF, Kronmal RA, Manolio TA, Burke GL, Wolfson SK Jr. Carotid-artery intima and media thickness as a risk factor for myocardial infarction and stroke in older adults. Cardiovascular Health Study Collaborative Research Group. *NEJM* 1999; 340: 14-22
51. Polak JF, Kronmal RA, Tell GS, O'Leary DH, Gardin JM, Rutan GH, Borhani NO. Compensatory increase in common carotid artery diameter. Relation to blood pressure and artery intima-media thickness in older adults. *Stroke* 1996; 27: 2012-2015
52. Qureshi AI, Suri F, Ali Z, Kim S, et al. Role of conventional angiography in evaluation of patients with carotid artery stenosis demonstrated by doppler ultrasound in general practice. *Stroke* 2001; 32: 2287-2291
53. Ranke C, Trappe JH. Blood flow velocity measurements for carotid stenosis estimation: interobserver variation and interequipment variability. *Vasa* 1997; 26: 210-214
54. Ray SA, Lockhart SJ, Dourado R, Irvine AT, Burnand KG. Effect of contralateral disease on duplex measurements of internal carotid artery stenosis. *Br J Surg* 2000; 87 (8): 1057-62
55. Reneman RS, Hoeks AP. Diameter and compliance in the human carotid artery--variations with age and sex. *Ultrasound Med Biol*. 1996;22(2) :271-2
56. Ricotta JJ, Bryan FA, Bond MG, Kurtz A, O'Leary DH, Raines JK, Berson AS, Clouse ME, Calderon-Ortiz M, Toole JF et al. Multicenter validation study of real-time (B-mode) ultrasound, arteriography, and pathologic examination. *J Vasc Surg* 1987; 5 (6): 512-520
57. Riley WA, Barnes RW, Evans GW, Burke G. Ultrasonic Measurement of the elastic modulus of the common carotid artery. *Stroke* 1992; 23 (7): 952-956
58. Roman MJ, Saba PS, Pini R, Spitzer M, Pickering TG, Rosen S, Alderman MH, Devereux RB. Parallel cardiac and vascular adaptation in hypertension. *Circulation* 1992; 86: 1909-1918
59. Samijo SK, Willigers JM, Barkhuysen R, Kitslaar PJ, Reneman RS, Brands PJ, Hoeks AP. Wall shear stress in the human common carotid artery as a function of age and gender. *Cardiovasc Res* 1998; 39 (2): 515-522
60. Scheel P, Ruge Ch, Schöning M. Flow velocity and flow volume measurement in the extracranial carotid and vertebral arteries in healthy adults: Reference data and effects of age. *Ultrasound in Med and Biol* 2000; 26 (8): 1261-1266
61. Schmidt-Trucksäss A, Grathwohl D, Schmid A, Boragk R, Upmeier C, Keul J, Huonker M. Structural, Functional, and hemodynamik changes of the common carotid artery with age in male subjects. *Arteriosler Thromb Vasc Biol* 1999; 19:

1091-1097

62. Simon A, Garipey J, Moyse D, Levenson J. Differential effects of nifedipin and coamilofide on the progression of early carotid wall changes. *Circulation* 2001; 103 (24): 2949-2952
63. Spencer EB, Sheafor DH, Hertzberg BS, Bowie JD, Nelson RC, Carroll BA, Kliewer MA Nonstenotic internal carotid arteries: Effects of age and blood pressure at the time of scanning on doppler US velocity measurements. *Radiology* 2001; 220: 174-178
64. Spencer KT, Mor-Avi V, Gorcsan J3rd, et al. Effects of aging on left atrial reservoir, conduit, and booster pump function: a multi-institution acoustic quantification study. *Heart* 2001; 85: 272-277
65. Umemura A, Yamada K. B-Mode Flow Imaging of the carotid artery. *Stroke* 2001; 32: 2055-2057
66. Welch LR, Fox MD. Practical spread spectrum pulse compression for ultrasonic tissue imaging. *IEEE Trans UFFC*, 1998; 45: 349-355
67. Weskott HP, Fürste T, Andreesen H. Detecting and Grading of ICA Stenosis by measuring area reduction using gray scale technique (B-Flow): A pilot study. *RSNA 2001, Supplement to Radiology*; 221 (P) :592
68. Weskott HP, Hoepfner M. Blood flow imaging within small tubes: B-Flow in comparison to Color, Power, Pulse Wave (PW) Doppler and CT: A Phantom Study. *RSNA 2000; Supplement to Radiology*; 217 (P): 394-395
69. Weskott HP, Holsing K. US-based evaluation of hemodynamic parameters in the common carotid artery: A nomogram Trial. *Radiology* 1997; 205: 353-359
70. Weskott HP. B-Flow - eine neue Methode zur Blutflussdetektion. *Ultrasch in Med* 2000; 21: 59-65
71. Weskott HP. Darstellung und Quantifizierung arterieller Stenosen mittels eines digitalen Pulssubtraktionsverfahrens (B-Flow). *Ultrasch in Med* 2001; 22 (Sonderheft): S131
72. Willinsky RA, Taylor SM, TerBrugge K, Farb RI, Tomlinson G, Montanera W. Neurologic complications of cerebral angiography: prospective analysis of 2,899 procedures and review of the literature. *Radiology*. 2003 May; 227(2):522-8
73. Zbornikova V, Lassvik C. Duplex scanning in presumably normal persons of different ages *Ultrasound in Med and Biol* 1986; 12 (5): 371-378

## Danksagung

Ich danke Herrn Priv. Doz. Dr. med. Thomas Albrecht für die Vergabe des Themas.

Zu besonderem Dank bin ich Herrn Dr. med. Hans-Peter Weskott für die überaus engagierte Betreuung und für die kritische Durchsicht des Manuskripts verpflichtet.

Für die Beratung bei der statistischen Auswertung der Ergebnisse bin ich Herrn Dr. rer. nat. Hermann vom Institut für Biometrie, Medizinische Informatik und Medizintechnik der Medizinischen Hochschule Hannover und meinem Bruder Wolfgang Hüffer, Dipl. Mathematiker, zu Dank verpflichtet.