

Literaturverzeichnis

- 1 Makrides SC. Therapeutic inhibition of the complement system. *Pharmacol Rev* 1998;50:59-87
- 2 Grace PA, Mathie,RM. Ischaemia – Reperfusion Injury, 1.Auflage 1999, 240-241 Blackwell Science Ltd
- 3 Lucchesi BR. Complement activation, neutrophils, and oxygen radicals in reperfusion injury. *Stroke* 1993;24:41-49
- 4 Lucchesi BR. Complement, neutrophils and free radicals: mediators of reperfusion injury. *Arzneim Forsch/Drug Res* 1994;44:420-431
- 5 Moore FD Jr. Therapeutic regulation of the complement system in acute injury states. *Adv Immunol* 1994;56:267-299
- 6 Lehrer RI, Ganz T, Selsted ME, Babior BM, Curnutte JT. Neutrophils and host defense. *Ann Intern Med* 1988;109:127-132
- 7 Pang CY. Ischemia-induced reperfusion injury in muscle flaps:pathogenesis and major source of free radicals. *J Reconstr Microsurg* 1990;6:77-82
- 8 Moser R, Schleifenbaum B, Groscurth P, Fehr J. Interleukin 1 and tumor necrosis factor stimulate humanvascular endothelial cells to promote transendothelial neutrophil passage. *J Clin Invest* 1989;83:444-455
- 9 Taylor PW. Non-immunglobulin activators of the complement system. In: Sim RB, ed. Activators and inhibitors of complement. Pp.37-68. Kluwer:Amsterdam, 1993
- 10 Schultz DR, Arnold PI. Properties of four acute phase proteins: C.reactive protein, serum amyloid A protein, alpha-1-acid glycoprotein and fibrinogen. *Semin Arthritis Rheum* 1990;20:129-147
- 11 Pinckard RN, Olson MS, Giclas PC, Terry R, Boyer JT, O'Rourke RA. Consumption of classical complement pathway components by heart subcellular membranes in vitro and in patients after acute myocardial infarction. *J Clin Invest* 1975;56:740-750
- 12 Späth PJ. C1-inhibitor. In: Haeberli A, editor. Human protein data. Weinheim: VCH;1992
- 13 Zeerleder S, Caliezi Ch, Redondo M, Devay I, Wuillemin WA: Aktivierung der plasmatischen Kaskadensysteme bei Sepsis: Rolle von C1-Inhibitor. *Schweiz Med Wochenschr* 1999;129:1410-1417

- 14 Bork K, Witzke G. Long-term prophylaxis with C1-inhibitor (C1 INH) concentrate in patients with recurrent angioedema caused by hereditary and acquired C1-inhibitor deficiency. *J. Allergy Clin. Immunol.* 1989;83:677-682
- 15 Murohara T, Guo JP, Delyani JA, Lefer AM: Cardioprotective effects of selective inhibition of the two complement activation pathways in myocardial ischemia and reperfusion injury. *Methods Find Exp Clin Pharmacol* 1995;17:499-507
- 16 Kishimoto T. The biology of interleukin-6. *Blood* 1989;74:1-10
- 17 Tedder TF, Steeber DA, Pizcueta P. L-Selektin-deficient mice have impaired Leukocyte Recruitment into inflammatory sites. *J. Exp. Med.* 1995;181:2259-2264
- 18 Cavaillon JM, Munoz C, Fitting C, Misset B, Carlet J. Circulating cytokines: the tip of the iceberg? *Circ. Shock* 1992;38:145-152
- 19 Hoch RC, Rodriguez R, Manning T, Bishop M, Mead P, Shoemaker WC, Abraham E. Effect of accidental trauma on cytokine and endotoxin production. *Crit. Care Med.* 1993;21:839-845
- 20 Nuytinck HK, Offermans XJ, Kubat K, Goris JA. Whole-body inflammation in trauma patients. An autopsy study. *Arch Surg* 1988;123:1519-1524
- 21 Bitterman H, Kinarty A, Lazarovich H, Lahat N. Acute release of cytokine in proportional to tissue injury induced by surgical trauma and shock in rats. *J. Clin. Immunol.* 1991;11:184-192
- 22 Yassin MM, Barros D'Sa AA, Parks G, Abdulkadir AS, Halliday I, Rowlands BJ. Mortality following Lower Limb Ischemia-Reperfusion: A Systemic Inflammatory Response ? *World J. Surg.* 1996;20:961-967
- 23 Goodman MG, Chenoweth DE, Weigle WO. Induction of interleukin 1 secretion and enhancement of humoral immunity by binding of human C5a to macrophage surface C5a receptors. *J Exp Med* 1982;156:912-917
- 24 Buerke M, Murohara T, Lefer AM. Cardioprotective effects of a C 1 esterase inhibitor in myocardial ischemia and reperfusion. *Circulation* 1995;91:393-402
- 25 Buerke M, Prüfer D, Dahm M, Oelert H, Meyer J, Darius H. Blocking of classical complement pathway inhibits endothelial adhesion molecule expression and preserves ischemic myocardium from reperfusion injury. *J Pharmacol Exp Ther* 1998;286:429-438
- 26 Horstick G, Heimann A, Gotze O, Hafner G, Berg O, Boehmer P, Becker P, Darius H, Rupprecht HJ, Loos M, Bhakdi S, Meyer J, Kempf O. Intracoronary application of C1 esterase inhibitor improves cardiac function and reduces myocardial necrosis in an experimental model of ischemia and reperfusion. *Circulation* 1997;95:701-708

- 27 Hack CE, Ogilvie AC, Eisele B, Eerenberg AJ, Wagstaff J, Thijs LG. C1-inhibitor substitution therapy in septic shock and the vascular leak syndrome induced by high doses of interleukin-2. *Intensive Care Med* 1993;19 Suppl 1:19-28
- 28 Arbones ML, Ord DC, Ley K, Ratech H, Maynard-Curry C, Otten G, Capon DJ, Tedder TF. Lymphocyte homing and leukocyte rolling and migration are impaired in L-Selektin (CD62L) deficient mice. *Immunity* 1994;1:247-260
- 29 Crockett-Torabi E, Sullenberger B, Smith CW, Fantone JC. Activation of human neutrophils through L-Selektin and Mac-1 molecules. *J Immunol*. 1995;154:2291-2302
- 30 Ley K, Tedder TF. Leukocyte interactions with vascular endothelium: new insights into Selektin-mediated attachment and rolling. *J Immunol* 1995;155:525-528.
- 31 Ley K, Tedder TF, Kansas GS. L-Selektin can mediate leukocyte rolling in untreated mesenteric venules in vivo independent of E- or P-Selektin. *Blood* 1993;82:1632-1638.
- 32 Ley K, Zakrzewicz A, Hanski C, Stoolman LM, Kansas GS. Sialylated O-glycans and L-Selektin sequentially mediate myeloid cell rolling in vivo. *Blood* 1995;85:3727-3735
- 33 von Andrian UH, Chambers JD, Berg EL, Michie SA, Brown DA, Karolak D, Ramezani L, Berger EM, Arfors KE, Butcher EC. L-Selektin mediates neutrophil rolling in inflamed venules through sialyl Lewis^x-dependent and -independent recognition pathways. *Blood* 1993;82:182-191
- 34 Kansas GS. Selektins and their ligands: current concepts and controversies. *Blood* 1996;88:3259-3287
- 35 Etter H, Althaus R, Eugster HP, Santamaria-Babi LF, Weber L, Moser R. IL-4 and IL-13 downregulate rolling adhesion of leukocytes to IL-1 or TNF-activated endothelial cells by limiting the interval of E-Selektin expression. *Cytokine* 1998;10:395-403
- 36 Wright RM, Holladay CS, Spangelo BL. Lipopolysaccharide induces interleukin-6 release from rat peritoneal macrophages in vitro, evidence for novel mechanism. *Circ Shock* 1993;41:131-137
- 37 Levy JH. The human inflammatory response. *J Cardiovasc Pharmacol* 1996;27 Suppl 1:31-37
- 38 Ward PA, Lentsch AB. The acute inflammatory response and its regulation. *Arch Surg* 1999;134:666-669

- 39 Bone RC. Immunologic dissonance: a continuing evolution in our understanding of the systemic inflammatory response syndrome (SIRS) and the multiple organ dysfunction syndrome (MODS). Ann Intern Med 1996;125:680-687
- 40 Youker K, Smith CW, Anderson DC, Miller D, Michael LH, Rossen RD, Entman ML. Neutrophil adherence to isolated adult cardiac myocytes: induction by cardiac lymph collected during ischemia and reperfusion. J Clin Invest 1992;89:602-609
- 41 Akira S, Hirano T, Taga T, Kishimoto T. Biology of multifunctional cytokines: IL-6 and related molecules (IL-1 and TNF). FASEB J 1990;4:2860-2867
- 42 Neumann FJ, Ott I, Gawaz M et al. Cardiac release of cytokines and inflammatory responses in acute myocardial infarction. Circulation 1995;92:748-755
- 43 Maruo N, Morita I, Shirao M, Murata S. IL-6 increases endothelial permeability in-vitro. Endocrinology 1992;131:710-714
- 44 Smith CW, Kishimoto TK, Abbassi O, Hughes B, Rothlein R, McIntire LV, Butcher EC, Anderson DC. Chemotactic factors regulates lectin adhesion molecule-1 (LECAM-1)-dependent neutrophil adhesion to cytokine-stimulated endothelial cells in vitro. J.Clin.Invest. 1991;87:609-618
- 45 Spertini O, Luscinskas FW, Kansas GS, Munro JM, Griffin JD, Gimbrone MA Jr, Tedder TF. Leukocyte adhesion molecule-1 (LAM-1) interacts with inducible endothelial cell ligand to support leukocyte adhesion. J.Immunol.1991;147:2565-2573
- 46 Jutila MA, Rorr L, Berg EL, Butcher EC. Funktion and regulation of the neutrophil MEL-14 antigen in vivo: comparison with LFA-1 and MAC-1. J Immunol 1989;143:3318-3324
- 47 Kishimoto TK, Jutila MA, Berg EL, Butcher EC. Neutrophil Mac-1 and MEL-14 adhesion proteins inversely regulated by chemotactic factors. Science 1989;245:1238-1241
- 48 Hafezi-Moghadam A, Ley K. Relevance of L-Selektin Shedding for Leukocyte Rolling in vivo. J.Exp.Med. 1999;189:939-947
- 49 Jung U, Ramos CL, Bullard DC, Ley K. Gene targeted mice reveal importance of L-selectin-dependent rolling for neutrophil adhesion. AJP Heart Circ Physiol 1998 274:1785-1791
- 50 Walcheck B, Kahn J, Fisher JM, Wang BB, Fisk RS, Payan DG, Feehan C, Betageri R, Darlak K, Spatola AF, Kishimoto TK. Neutrophil rolling altered by inhibition of L-Selektin shedding in vitro. Nature 1996;380:720-723

- 51 Allport J, Ding H, Ager A, Steeber D, Tedder T, Luscinskas F. L-Selektin does not regulate human neutrophil attachment rolling, or transmigration across human vascular endothelium in vitro. *J. Immunol.* 1997;158:4365-4372
- 52 Jung U, Norman KE, Scharffetter-Kochanek K, Beaudet AL and Ley K. Transit time of leukocytes rolling through venules controls cytokine-induced inflammatory cell recruitment in vivo. *J.Clin.Invest.* 1998;102:1526-1533
- 53 Hafezi-Moghadam A, Thomas KL, Prorock AJ, Huo Y, Ley K. L-Selektin shedding regulates leukocyte recruitment. *J Exp Med* 2001;193:863-872
- 54 Ley K. Molecular mechanisms of leukocyte recruitment in the inflammatory process. *Cardiovascular Research* 1996;32:733-742
- 55 Crockett-Torabi E. Selektins and mechanisms of signal transduction. *J-Leukoc-Biol.* 1998;63:1-14
- 56 Butcher EC. Leukocyte-endothelial cell recognition: three (or more) steps to specificity and diversity. *Cell.* 1991;67:1033-1036
- 57 Yao YM, Bahrami S, Redl H, Fuerst S, Schlag G. IL-6 release after Intestinal Ischemia/Reperfusion in Rats is under partial control of TNF. *J.Surg.Res.* 1997;70:21-26
- 58 Vakeva A, Meri S. Complement activation and regulator expression after anoxic injury of human endothelial cells. *APMIS* 1998;106:1149-1156
- 59 Condliffe AM, Chilvers ER, Haslett C, Dransfield I. Priming differentially regulates neutrophil adhesion molecule expression/function. *Immunology* 1996;89:105-111
- 60 Baatz H, Steinbauer M, Harris AG, Krombach F. Kinetics of white blood cell staining by intravascular administration of rhodamine 6G. *Int J Microcirc Clin Exp.* 1995;15:85-91
- 61 Wayland H, Johnson PC. Erythrocyte velocity measurements in microvessels by two-slit photometric method. *J Appl Physiol* 1967;22:333-337
- 62 Osterloh K, Gaethgens P, Pries AR. Determination of microvascular flow pattern formation in vivo. *Am J Physiol Heart Circ Physiol* 2000;278:H1142-1152
- 63 Baez S. An open cremaster muscle preparation for the study of blood vessels by in vivo microscopy. *Microvasc Res* 1973;5:384-394
- 64 Hill MA, Simpson BE, Meininger GA. Altered cremaster muscle hemodynamics due to disruption of the deferential feed vessels. *Microvasc Res* 1990;39:349-363
- 65 Schoenberg MH, Beger HG. Reperfusion injury after intestinal ischemia. *Crit Care Med* 1993;21:1376-1386

- 66 Nilsson UA, Schoenberg MH, Aneman A, Poch B, Magadum S, Beger HG, Lundgren O. Free radicals and pathogenesis during ischemia and reperfusion of the cat small intestine. *Gastroenterology*. 1994;106:629-636
- 67 Braunwald E, Kloner RA. Myocardial reperfusion: a double-edged sword? *J Clin Invest.* 1985;76:1713-1719
- 68 Park JL, Lucchesi BR. Mechanisms of myocardial reperfusion injury. *Ann Thorac Surg.* 1999;68:1905-1912
- 69 Baldwin WM 3rd, Pruitt SK, Brauer RB, Daha MR, Sanfilippo F. Complement in organ transplantation. Contributions to inflammation, injury, and rejection. *Transplantation.* 1995;59:797-808
- 70 Vollmar B, Glasz J, Leiderer R, Post S, Menger MD. Hepatic microcirculatory perfusion failure is a determinant of liver dysfunction in warm ischemia-reperfusion. *Am J Pathol.* 1994;145:1421-1431
- 71 Farb A, Kolodgie FD, Jenkins M, Virmani R. Myocardial infarct extension during reperfusion after coronary artery occlusion: pathologic evidence. *J Am Coll Cardiol* 1993;21:1245-1253
- 72 Calandra T, Gerain J, Heumann D, Baumgartner JD, Glauser MP. High circulating levels of interleukin-6 in patients with septic shock: evolution during sepsis, prognostic value, and interplay with other cytokines. *Am J Med* 1991;91:23-29
- 73 Dofferhoff AS, Vellenga E, Limburg PC, van Zanten A, Mulder PO, Weits J. Tumor necrosis factor (cachectin) and other cytokines in septic shock: a review of the literature. *Neth J Med* 1991;39:45-62
- 74 Damas P, Ledoux D, Nys M, Vrindts Y, De Groote D, Franchimont P, Lamy M. Cytokine serum level during severe sepsis in human IL-6 as a marker of severity. *Ann Surg* 1992; 215:356-362
- 75 Molloy RG, Mannick JA, Rodrick ML. Cytokines, sepsis and immunomodulation. *Br J Surg* 1993;80:289-297
- 76 Fugger R, Zadrobilek E, Gotzinger P, Klimann S, Rogy M, Winkler S, Andel H, Mittelbock M, Roth E, Schulz F, et al. Perioperative TNF alpha and IL-6 concentrations correlate with septic state, organ function, and APACHE II scores in intra-abdominal infection. *Eur J Surg* 1993;159:525-529
- 77 Casey LC, Balk RA, Bone RC. Plasma cytokine and endotoxin levels correlate with survival in patients with the sepsis syndrome. *Ann Intern Med* 1993;119:771-778

- 78 Martin C, Boisson C, Haccoun M, Thomachot L, Mege JL. Patterns of cytokine evolution (tumor necrosis factor-alpha and interleukin-6) after septic shock, hemorrhagic shock, and severe trauma. Crit Care Med 1997;25:1813-1819
- 79 Riche FC, Cholley BP, Panis YH, Laisne MJ, Briard CG, Graulet AM, Gueris JL, Valleur PD. Inflammatory cytokine response in patients with septic shock secondary to generalized peritonitis. Crit Care Med 2000;28:433-437
- 80 Kilgore KS, Shen JP, Miller BF, Ward PA and Warren JS. Enhancement by the Membrane Attack Complex of Tumor Necrosis- α -induced endothelial cell expression of E-Selectin and ICAM-1. The Journal of Immunology. 1995;155:1434-1441
- 81 Foreman KE, Vaporciyan AA, Bonish BK, Jones ML, Johnson KJ, Glovsky MM, Eddy SM, and Ward PA. C5a-induced expression of P-Selectin in endothelial cells. J.Clin.Invest. 1994;94:1147-1155
- 82 Marks RM, Todd RF 3rd, and Ward PA. Rapid induction of neutrophil-endothelial adhesion by endothelial complement fixation. Nature 1989;339:314-317
- 83 Schuster HP und Werdan K. Intensivtherapie bei Sepsis und Multiorganversagen, 3. vollst.überarbeitete Auflage, Springer Verlag Berlin/Heidelberg 2000
- 84 Riedemann NC, Ward PA. Complement in ischemia reperfusion injury. Am J Pathol. 2003;162:363-367
- 85 Yassin MM, Harkin DW, Barros D'Sa AA, Halliday MI, Rowlands BJ. Lower limb ischemia-reperfusion injury triggers a systemic inflammatory response and multiple organ dysfunction. World J Surg. 2002;26:115-121
- 86 Agostoni A, Bergamaschini L, Martignoni G, Cicardi M, Marasini B. Treatment of acute attacks of hereditary angioedema with C1-inhibitor concentrate. Ann Allergy. 1980;44:299-301
- 87 Gadek JE, Hosea SW, Gelfand JA, Santaella M, Wickerhauser M, Triantaphyllopoulos DC, Frank MM. Replacement therapy in hereditary angioedema: successful treatment of acute episodes of angioedema with partly purified C1 inhibitor. N Engl J Med. 1980;302:542-546
- 88 Scholz W, McClurg MR, Cardenas GJ, Smith M, Noonan DJ, Hugli TE, Morgan EL. C5a-mediated release of interleukin 6 by human monocytes. Clin Immunol Immunopathol. 1990;57:297-307
- 89 Caliezi C, Wuillemin WA, Zeerleder S, Redondo M, Eisele B, Hack CE. C1-Esterase inhibitor: an anti-inflammatory agent and its potential use in the treatment of diseases other than hereditary angioedema. Pharmacol Rev. 2000;52:91-112

- 90 Zeerleider S, Caliezi C, van Mierlo G, Eerenberg-Belmer A, Sulzer I, Hack CE, Wuillemin WA. Administration of C1 inhibitor reduces neutrophil activation in patients with sepsis. *Clin Diagn Lab Immunol.* 2003;10:529-535
- 91 Kimizuka K, Nakao A, Nalesnik MA, Demetris AJ, Uchiyama T, Ruppert K, Fink MP, Stoltz DB, Murase N. Exogenous IL-6 inhibits acute inflammatory responses and prevents ischemia/reperfusion injury after intestinal transplantation. *Am J Transplant.* 2004;4:482-494
- 92 Camargo CA Jr, Madden JF, Gao W, Selvan RS, Clavien PA. Interleukin-6 protects liver against warm ischemia/reperfusion injury and promotes hepatocyte proliferation in the rodent. *Hepatology.* 1997;26:1513-1520
- 93 Xing Z, Gauldie J, Cox G, Baumann H, Jordana M, Lei XF, Achong MK. IL-6 is an antiinflammatory cytokine required for controlling local or systemic acute inflammatory responses. *J Clin Invest.* 1998;101:311-320
- 94 Riedemann NC, Guo RF, Hollmann TJ, Gao H, Neff TA, Reuben JS, Speyer CL, Sarma JV, Wetsel RA, Zetoune FS, Ward PA. Regulatory role of C5a in LPS-induced IL-6 production by neutrophils during sepsis. *FASEB J.* 2004;18:370-372
- 95 Woodruff TM, Arumugam TV, Shiels IA, Reid RC, Fairlie DP, Taylor SM. Protective Effects of a potent C5a receptor antagonist on experimental acute limb ischemia-reperfusion in rats. *J Surg Res.* 2004;116:81-90
- 96 Yancey KB. Biological properties of human C5a: Selected in vitro and in vivo studies. *Clin Exp Immunol.* 1988;71:207-210
- 97 Nielsen EW, Mollnes TE, Harlan JM, Winn RK. C1-Inhibitor reduces the ischemia-reperfusion injury of skeletal muscles in mice after aortic cross-clamping. *Scand J Immunol.* 2002;56:588-592
- 98 Iwata A, Harlan JM, Vedder NB, Winn RK. The caspase inhibitor z-VAD is more effective than CD18 adhesion blockade in reducing muscle ischemia-reperfusion injury: implication for clinical trials. *Blood.* 2002;100:2077-2080
- 99 Horstick G, Berg O, Heimann A, Gotze O, Loos M, Hafner G, Bierbach B, Petersen S, Bhakdi S, Darius H, Horstick M, Meyer J, Kempf O. Application of C1-Esterase-Inhibitor during Reperfusion of ischemic myokardium. Dose-related beneficial versus detrimental effects. *Circulation.* 2001;104:3125-3131
- 100 Davies MG, Hagen PO. Systemic inflammatory response syndrome. *Br J Surg* 1997;84:920-935
- 101 Rangel-Frausto MS, Pittet D, Costigan M, Hwang T, Davis CS, Wenzel RP. The natural history of the systemic inflammatory response syndrome (SIRS): A prospective study. *JAMA.* 1995;273:117-123

- 102 Laffey JG, Boylan JF, Cheng DC. The systemic inflammatory response to cardiac surgery: implications for the anesthesiologist. *Anesthesiology*. 2002;97:215-252
- 103 Barrington R, Zhang M, Fischer M, Carroll MC. The role of complement in inflammation and adaptive immunity. *Immunol Rev*. 2001;180:5-15
- 104 Riedemann NC, Neff TA, Guo RF, Bernacki KD, Laudes IJ, Sarma JV, Lambris JD, Ward PA. Protective effects of IL-6 blockade in sepsis are linked to reduced C5a receptor expression. *J Immunol*. 2003;170:503-507
- 105 Mollnes TE, Fosse E. The complement system in trauma-related and ischemic tissue damage: a brief review. *Shock*. 1994;2:301-310
- 106 Jiang H, Wagner E, Zhang H, Frank MM. Complement 1 inhibitor is a regulator of the alternative complement pathway. *J Exp Med*. 2001;194:1609-1616
- 107 Lucchesi BR, Kilgore KS. Complement inhibitors in myocardial ischemia/reperfusion injury. *Immunopharmacology*. 1997;38:27-42
- 108 Kirschfink M. Targeting complement in therapy. *Immunol Rev*. 2001;180:177-189
- 109 Hugli TE. Biochemistry and biology of anaphylatoxins. *Complement*. 1986;3:111-127
- 110 Matsushita M, Thiel S, Jensenius JC, Terai I, Fujita T. Proteolytic activities of two types of mannose-binding lectin-associated serine protease. *J Immunol*. 2000;165:2637-2642