

6. Literatur

- Aguero-Rosenfeld, M. E.** (2003): Laboratory aspects of Tick-borne diseases: Lyme, Human Granulocytic Ehrlichiosis and Babesiosis, *Mt Sinai J Med* 70(3):197-206
- Anderson, B. E.,** Dawson, J. E., Jones, D. C. und Wilson, K. H. (1991): *Ehrlichia chaffeensis*, a new species associated with human ehrlichiosis, *J Clin Microbiol* 29:2838-2842
- Arnez, M.,** Petrovec, M., Lotric-Furlan, S., Zupanc, T. A. und Strle, F. (2001): First European pediatric case of human granulocytic ehrlichiosis, *J Clin Microbiol* 39:4591-4592
- Bakken, J. S. und Dumler, J. S.** (2000): Human granulocytic ehrlichiosis, *Clin Infect Dis* 31:554-560
- Bakken, J. S.,** Haller, I., Riddell, D., Walls, J. J. und Dumler, J. S. (2002): The serological response of patients infected with the agent of human granulocytic ehrlichiosis, *Clin Infect Dis* 34:22-27
- Bakken, J. S.,** Krueth, J., Tilden, R. L., Dumler, J. S. und Kristiansen, B. E. (1996a): Serological evidence of human granulocytic ehrlichiosis in Norway, *Eur J Clin Microbiol Infect Dis* 15:829-832
- Bakken, J. S.,** Krueth, J., Wilson-Nordskog, C., Tilden, R. L., Asanovich, K. und Dumler, J. S. (1996b): Clinical and laboratory characteristics of human granulocytic ehrlichiosis, *JAMA* 275:199-205
- Bakken, J. S.,** Krueth, J. K., Lund, T., Malkovitch, D., Asanovich, K. und Dumler, J. S. (1996c). Exposure to deer blood may be a cause of human granulocytic ehrlichiosis, *Clin Infect Dis* 23:198
- Barbet, A. F.,** Meeus, P. F., Belanger, M., Bowie, M. V., Yi, J., Lundgren, A. M., Alleman, A. R., Wong, S. J., Chu, F. K., Munderloh, U. G. und Jauron, S. D. (2003): Expression of multiple outer membrane protein sequence variants from a single genomic locus of *Anaplasma phagocytophilum*, *Infect Immun* 71:1706-1718
- Batzing-Feigenbaum, J.,** Kallischnigg, G., Ruden, H. und Talaska, T. (2000): Human granulocytic ehrlichiosis. New tick bite disease lies in wait also in German forests, *MMW Fortschr Med* 142:32-34
- Baumgarten, B. U.,** Rollinghoff, M. und Bogdan, C. (1999): Prevalence of *Borrelia burgdorferi* and granulocytic and monocytic *ehrlichiae* in *Ixodes ricinus* ticks from southern Germany, *J Clin Microbiol* 37:3448-3451

- Bedner, E.,** Burfeind, P., Hsieh, T. C., Wu, J. M., Agüero-Rosenfeld, M. E., Melamed, M. R., Horowitz, H. W., Wormser, G. P. und Darzynkiewicz, Z. (1998): Cell cycle effects and induction of apoptosis caused by infection of HL-60 cells with human granulocytic ehrlichiosis pathogen measured by flow and laser scanning cytometry, *Cytometry* 33:47-55
- Beniston, M.** (2002): Climatic change: Possible impacts on human health, *Swiss Med Wkly* 132:332-337
- Bjoersdorff, A.,** Brouqui, P., Eliasson, I., Massung, R. F., Wittesjö, B. und Berglund, J. (1999): Serological evidence of *Ehrlichia* infection in Swedish Lyme borreliosis patients, *Scand J Infect Dis* 31:51-55
- Blanco, J. R.,** und Oteo, J. A. (2002): Human granulocytic ehrlichiosis in Europe, *Clin Microbiol Infect* 8:763-772
- Bown, K. J.,** Begon, M., Bennett, M., Woldehiwet, Z. und Ogden, N. H. (2003): Seasonal dynamics of *Anaplasma phagocytophila* in a rodent-tick (*Ixodes trianguliceps*) system, United Kingdom, *Emerg Infect Dis* 9:63-70
- Brouqui, P.:** Ehrlichiosis in Europe, in **Raoult, D. und Brouqui, P.** (Elsevier): *Rickettsiae and rickettsial diseases at the turn of the third millennium*, Paris 1999, S. 220-232
- Brouqui, P.,** Raoult, D. und Durand, J. M. (1995): *Ehrlichia* species as possible causative agents of blood culture-negative endocarditis, *Clin Microbiol Infect* 1:148-150
- Brouqui, P.,** Sanogo, Y. O., Caruso G. und Raoult D. (2002). "*Ehrlichia walkerii*" a new *Ehrlichia* detected in *I. ricinus* collected from asymptomatic humans in northern Italy. Paper presented at: International Conference on Rickettsiae and Rickettsial Disease. (Ljubljana, Slovenia).
- CDC** (1997): Case definitions for infectious conditions under public health surveillance, Centers for Disease Control and Prevention, *MMWR Recomm Rep* 46:1-55
- Chen, S. M.,** Dumler, J. S., Bakken, J. S. und Walker, D. H. (1994): Identification of a granulocytotropic *Ehrlichia* species as the etiologic agent of human disease, *J Clin Microbiol* 32:589-595
- Christova, I. S. und Dumler, J. S.** (1999): Human granulocytic ehrlichiosis in Bulgaria, *Am J Trop Med Hyg* 60:58-61
- Cizman, M.,** Avsic-Zupanc, T., Petrovec, M., Ruzic-Sabljic, E. und Pokorn, M. (2000): Seroprevalence of ehrlichiosis, Lyme borreliosis and tick-borne encephalitis infections in children and young adults in Slovenia, *Wien Klin Wochenschr* 112:842-845

- Daniel, S. A.,** Manika, K., Arvanitidou, M., Diza, E., Symeonidis, N. und Antoniadis, A. (2002): Serologic evidence of human granulocytic ehrlichiosis, Greece, *Emerg Infect Dis* 8:643-644
- Donatien, A. und Lestoquard, F.** (1935): Existence en Algérie d'une Rickettsia du chien, *Bull Soc Pathol Exot* 28:418-419
- Dorr, B., und Gothe, R.** (2001): Cold-hardiness of *Dermacentor marginatus* (Acari: Ixodidae), *Exp Appl Acarol* 25:151-169
- Dumler, J. S.,** Asanovich, K. M., Bakken, J. S., Richter, P., Kimsey, R. und Madigan, J. E. (1995): Serologic cross-reactions among *Ehrlichia equi*, *Ehrlichia phagocytophila*, and human granulocytic *Ehrlichia*, *J Clin Microbiol* 33:1098-1103
- Dumler, J. S.,** Barbet, A. F., Bekker, C. P., Dasch, G. A., Palmer, G. H., Ray, S. C., Rikihisa, Y. und Rurangirwa, F. R. (2001): Reorganization of genera in the families *Rickettsiaceae* and *Anaplasmataceae* in the order *Rickettsiales*: Unification of some species of *Ehrlichia* with *Anaplasma*, *Cowdria* with *Ehrlichia* and *Ehrlichia* with *Neorickettsia*, descriptions of six new species combinations and designation of *Ehrlichia equi* and 'HGE agent' as subjective synonyms of *Ehrlichia phagocytophila*, *Int J Syst Evol Microbiol* 51:2145-2165
- Dumler, J. S.,** Dotevall, L., Gustafson, R. und Granstrom, M. (1997): A population-based seroepidemiologic study of human granulocytic ehrlichiosis and Lyme borreliosis on the west coast of Sweden, *J Infect Dis* 175:720-722
- Edelman, D. C. und Dumler, J. S.** (1996): Evaluation of an improved PCR diagnostic assay for human granulocytic ehrlichiosis, *Mol Diagn* 1:41-49
- Everett, E. D.** (1995): Human *ehrlichia* infections, *Curr Opin Infect Dis* 8:127-129
- Ewing, S. A.,** Roberson, W. R., Buckner, R. G. und Hayat, C. S. (1971): A new strain of *Ehrlichia canis*, *J Am Vet Med Assoc* 159:1771-1774
- Fingerle, V.,** Goodman, J. L., Johnson, R. C., Kurtti, T. J., Munderloh, U. G. und Wilske, B. (1997): Human granulocytic ehrlichiosis in southern Germany: Increased seroprevalence in high-risk groups, *J Clin Microbiol* 35:3244-3247
- Foggie, A.** (1951): Studies on the infectious agent of tick-borne fever in sheep, *J Pathol Bacteriol* 63:1-15
- Githeko, A. K.,** Lindsay, S. W., Confalonieri, U. E. und Patz, J. A. (2000): Climate change and vector-borne diseases: a regional analysis, *Bull World Health Organ* 78:1136-1147
- Gordon, W. S.,** Brownlee, A., Wilson, D. R. und MacLeod, J. (1932): Tick-borne fever. A hitherto undescribed disease of sheep, *J Comp Pathol Therap* 65:301-307

- Gribble, D. H.** (1969): Equine ehrlichiosis, *J Am Vet Med Assoc* 155:462-469
- Groen, J.,** Koraka, P., Nur, Y. A., Avsic-Zupanc, T., Goessens, W. H., Ott, A. und Osterhaus, A. D. (2002): Serologic evidence of ehrlichiosis among humans and wild animals in The Netherlands, *Eur J Clin Microbiol Infect Dis* 21:46-49
- Grzeszczuk, A.,** Stanczak, J. und Kubica-Biernat, B. (2002): Serological and molecular evidence of human granulocytic ehrlichiosis focus in the Bialowieza Primeval Forest (Puszcza Bialowieska), northeastern Poland, *Eur J Clin Microbiol Infect Dis* 21:6-11
- Guillaume, B.,** Heyman, P., Lafontaine, S., Vandenvelde, C., Delmee, M. und Bigaignon, G. (2002): Seroprevalence of human granulocytic ehrlichiosis infection in Belgium, *Eur J Clin Microbiol Infect Dis* 21:397-400
- Guy, E.,** Tasker, S. und Joynson, D. H. (1998): Detection of the agent of human granulocytic ehrlichiosis (HGE) in UK ticks using polymerase chain reaction, *Epidemiol Infect* 121:681-3
- Herron, M. J.,** Nelson, C. M., Larson, J., Snapp, K. R., Kansas, G. S. und Goodman, J. L. (2000): Intracellular parasitism by the human granulocytic ehrlichiosis bacterium through the P-selectin ligand, PSGL-1, *Science* 288:1653-1656
- Hildebrandt, A.,** Schmidt, K. H., Fingerle, V., Wilske, B. und Straube, E. (2002): Prevalence of granulocytic *Ehrlichiae* in *Ixodes ricinus* ticks in Middle Germany (Thuringia) detected by PCR and sequencing of a 16S ribosomal DNA fragment, *FEMS Microbiol Lett* 211:225-230
- Horowitz, H. W.,** Hsieh, T. C., Agüero-Rosenfeld, M. E., Kalantarpour, F., Chowdhury, I., Wormser, G. P. und Wu, J. M. (2001): Antimicrobial susceptibility of *Ehrlichia phagocytophila*, *Antimicrob Agents Chemother* 45:786-788
- Horowitz, H. W.,** Kilchevsky, E., Haber, S., Agüero-Rosenfeld, M., Kranwinkel, R., James, E. K., Wong, S. J., Chu, F., Liveris, D. und Schwartz, I. (1998): Perinatal transmission of the agent of human granulocytic ehrlichiosis, *N Engl J Med* 339:375-378
- Hunfeld, K. P. und Brade, V.** (1999): Prevalence of antibodies against the human granulocytic ehrlichiosis agent in Lyme borreliosis patients from Germany, *Eur J Clin Microbiol Infect Dis* 18:221-224
- IPCC** (1998): The regional impacts of climate change, Cambridge and New York: Cambridge University Press, 517
- Jauron, S. D.,** Nelson, C. M., Fingerle, V., Ravyn, M. D., Goodman, J. L., Johnson, R. C., Lobentanzer, R., Wilske, B. und Munderloh, U. G. (2001): Host cell-specific expression of a p44 epitope by the human granulocytic ehrlichiosis agent, *J Infect Dis* 184:1445-1450

- Jenkins, A.,** Kristiansen, B. E., Allum, A. G., Aakre, R. K., Strand, L., Kleveland, E. J., van de Pol, I. und Schouls, L. (2001): *Borrelia burgdorferi sensu lato* and *Ehrlichia spp.* in *Ixodes* ticks from southern Norway, J Clin Microbiol 39:3666-3671
- Karlsson, U.,** Bjoersdorff, A., Massung, R. F. und Christensson, B. (2001): Human granulocytic ehrlichiosis - a clinical case in Scandinavia, Scand J Infect Dis 33:73-74
- Kistemann, T. und Exner, M.** (2000): Bedrohung durch Infektionskrankheiten? Risikoeinschätzung und Kontrollstrategien, Deutsches Ärzteblatt 97:251-255
- Klein, M. B.,** Nelson, C. M. und Goodman, J. L. (1997): Antibiotic susceptibility of the newly cultivated agent of human granulocytic ehrlichiosis: Promising activity of quinolones and rifamycins, Antimicrob Agents Chemother 41:76-79
- Lebech, A. M.,** Hansen, K., Pancholi, P., Sloan, L. M., Magera, J. M. und Persing, D. H. (1998): Immunoserologic evidence of Human Granulocytic Ehrlichiosis in Danish patients with Lyme neuroborreliosis, Scand J Infect Dis 30:173-176
- Levin, M. L.,** des Vignes, F., Fish, D. (1999): Disparity in the natural cycles of *Borrelia burgdorferi* and the agent of human granulocytic ehrlichiosis, Emerg Infect Dis 5:204-208
- Levin, M. L. und Fish, D.** (2000): Immunity reduces reservoir host competence of *Peromyscus leucopus* for *Ehrlichia phagocytophila*, Infect Immun 68:1514-1518
- Lindgren, E.,** Talleklint, L. und Polfeldt, T. (2000): Impact of climatic change on the northern latitude limit and population density of the disease-transmitting European tick *Ixodes ricinus*, Environ Health Perspect 108:119-123
- Lotric-Furlan, S.,** Petrovec, M., Zupanc, T. A., Nicholson, W. L., Sumner, J. W., Childs, J. E. und Strle, F. (1998): Human granulocytic ehrlichiosis in Europe: Clinical and laboratory findings for four patients from Slovenia, Clin Infect Dis 27:424-428
- Maeda, K.,** Markowitz, N., Hawley, R. C., Ristic, M., Cox, D. und McDade, J. E. (1987): Human infection with *Ehrlichia canis*, a leukocytic rickettsia, N Engl J Med 316:853-856
- McDade, J. E.** (1990): Ehrlichiosis - a disease of animals and humans, J Infect Dis 161:609-617
- McKechnie, D. B.,** Slater, K. S., Childs, J. E., Massung, R. F. und Paddock, C. D. (2000): Survival of *Ehrlichia chaffeensis* in refrigerated, ADSOL-treated RBCs, Transfusion 40:1041-1047.
- McQuiston, J. H.,** Childs, J. E., Chamberland, M. E. und Tabor, E. (2000): Transmission of tick-borne agents of disease by blood transfusion: a review of known and potential risks in the United States, Transfusion 40:274-284

- Misao, T. und Kobayashi, Y.** (1954): Studies on infectious mononucleosis (glandular fever). Isolation of etiologic agent from blood, bone marrow, and lymph node of a patient with infectious mononucleosis by using mice, Tokyo Iji Shinshi 71:683-686
- Morais, J. D., Dawson, J. E., Green, C., Filipe, A. R., Galhardas, L. C. und Bacellar, F.** (1991): First European Case of Ehrlichiosis, Lancet 338:633-634
- Moshkovski, S. D.** (1945): Cytotropic inducers of infection and the classification of the *Rickettsiae* with *Chlamydozoa*, Adv Mod Biol (Moscow) 19:1-44
- Mott, J., Barnewall, R. E. und Rikihisa, Y.** (1999): Human granulocytic ehrlichiosis agent and *Ehrlichia chaffeensis* reside in different cytoplasmic compartments in HL-60 cells, Infect Immun 67:1368-1378
- Nadelman, R. B., Horowitz, H. W., Hsieh, T. C., Wu, J. M., Agüero-Rosenfeld, M. E., Schwartz, I., Nowakowski, J., Varde, S. und Wormser, G. P.** (1997): Simultaneous human granulocytic ehrlichiosis and Lyme borreliosis, N Engl J Med 337:27-30
- Nicholson, W. L., Comer, J. A., Sumner, J. W., Gingrich-Baker, C., Coughlin, R. T., Magnarelli, L. A., Olson, J. G. und Childs, J. E.** (1997): An indirect immunofluorescence assay using a cell culture-derived antigen for detection of antibodies to the agent of human granulocytic ehrlichiosis, J Clin Microbiol 35:1510-1516
- Nuti, M., Serafini, D. A., Bassetti, D., Ghionni, A., Russino, F., Rombola, P., Macri, G. und Lillini, E.** (1998): Ehrlichia infection in Italy, Emerg Infect Dis 4:663-665
- Oteo, J. A., Blanco, J. R., Martínez de Artola, V. und Ibarra, V.** (2000): First report of human granulocytic ehrlichiosis from southern Europe (Spain), Emerg Infect Dis 6:430-432
- Oteo, J. A., Gil, H., Barral, M., Pérez, A., Jiménez, S., Blanco, J. R., Martínez de Artola, V., García-Pérez, A. und Juste, R. A.** (2001): Presence of granulocytic *ehrlichia* in ticks and serological evidence of human infection in La Rioja, Spain, Epidemiol Infect 127:353-358
- Parola, P. und Raoult, D.** (2001): Tick-borne bacterial diseases emerging in Europe, Clin Microbiol Infect 7:80-83
- Petrovec, M., Lotric-Furlan, S., Zupanc, T. A., Strle, F., Brouqui, P., Roux, V. und Dumler, J. S.** (1997): Human disease in Europe caused by a granulocytic *Ehrlichia* species, J Clin Microbiol 35:1556-1559
- Petrovec, M., Sumner, J. W., Nicholson, W. L., Childs, J. E., Strle, F., Barlic, J., Lotric-Furlan, S. und Avsic Zupanc, T.** (1999): Identity of ehrlichial DNA sequences derived from *Ixodes ricinus* ticks with those obtained from patients with human granulocytic ehrlichiosis in Slovenia, J Clin Microbiol 37:209-210

- Pierard, D.,** Levtchenko, E., Dawson, J. E. und Lauwers, S. (1995): Ehrlichiosis in Belgium, *Lancet* 346:1233-1234
- Pusterla, N.,** Leutenegger, C. M., Huder, J. B., Weber, R., Braun, U. und Lutz, H. (1999): Evidence of the human granulocytic ehrlichiosis agent in *Ixodes ricinus* ticks in Switzerland, *J Clin Microbiol* 37:1332-1334
- Ravyn, M. D.,** Goodman, J. L., Kodner, C. B., Westad, D. K., Coleman, L. A., Engstrom, S. M., Nelson, C. M. und Johnson, R. C. (1998): Immunodiagnosis of human granulocytic ehrlichiosis by using culture- derived human isolates, *J Clin Microbiol* 36:1480-1488
- Rikihisa, Y.** (1991): The tribe *Ehrlichieae* and ehrlichial diseases, *Clin Microbiol Rev* 4:286-308
- Santino, I.,** del Piano, M., Sessa, R., Favia, G. und Iori, A. (2002): Detection of four *Borrelia burgdorferi* genospecies and first report of human granulocytic ehrlichiosis agent in *Ixodes ricinus* ticks collected in central Italy, *Epidemiol Infect* 129:93-97
- Skarphedinsson, S.,** Sogaard, P. und Pedersen, C. (2001): Seroprevalence of human granulocytic ehrlichiosis in high-risk groups in Denmark, *Scand J Infect Dis* 33:206-210
- Springer, S. A. und Altice, F. L.** (2003): Human immunodeficiency virus infection with human granulocytic ehrlichiosis complicated by symptomatic lactic acidosis, *Clin Infect Dis* 36:162-164
- Stanczak, J.,** Racewicz, M., Kruminis-Lozowska, W. und Kubica-Biernat, B. (2002): Coinfection of *Ixodes ricinus* (Acari: *Ixodidae*) in northern Poland with the agents of Lyme borreliosis (LB) and human granulocytic ehrlichiosis (HGE), *Int J Med Microbiol* 291 *Suppl* 33:198-201
- Subak, S.** (2003): Effects of climate on variability in Lyme disease incidence in the northeastern United States, *Am J Epidemiol* 157:531-538
- Tylewska-Wierzbanowska, S.,** Chmielewski, T., Kondrusik, M., Hermanowska-Szpakowicz, T., Sawicki, W. und Sulek, K. (2001): First cases of acute human granulocytic ehrlichiosis in Poland, *Eur J Clin Microbiol Infect Dis* 20:196-198
- Unver, A.,** Felek, S., Paddock, C. D., Zhi, N., Horowitz, H. W., Wormser, G. P., Cullman, L. C. und Rikihisa, Y. (2001): Western blot analysis of sera reactive to human monocytic ehrlichiosis and human granulocytic ehrlichiosis agents, *J Clin Microbiol* 39:3982-3986
- van Dobbenburgh, A.,** van Dam, A. P. und Fikrig, E. (1999): Human granulocytic ehrlichiosis in western Europe, *N Engl J Med* 340:1214-1216

- van Es, R. P.,** Hillerton, J. E. und Gettinby, G. (1998): Lipid consumption in *Ixodes ricinus* (Acari: Ixodidae): Temperature and potential longevity, Bull Entomol Res 88:567-573
- von Loewenich, F. D.,** Stumpf, G., Baumgarten, B. U., Rollinghoff, M., Dumler, J. S. und Bogdan, C. (2003): A Case of Equine Granulocytic Ehrlichiosis Provides Molecular Evidence for the Presence of Pathogenic *Anaplasma phagocytophilum* (HGE Agent) in Germany, Eur J Clin Microbiol Infect Dis 22:303-305
- Walder G,** Falkensammer B., Aigner J., Tiwald G., Dierich M. P., Wurzner R. und Lechleitner P. (2003): First documented case of human granulocytic ehrlichiosis in Austria, Wien Klin Wochenschr 115:263-266
- Walker, D. H.,** (1999): Consensus workshop on diagnosis of human ehrlichioses, American Society for Rickettsiology Newsletter 2:1-8
- Wang, T.,** Malawista, S. E., Pal, U., Grey, M., Meek, J., Akkoyunlu, M., Thomas, V. und Fikrig, E. (2002): Superoxide anion production during *Anaplasma phagocytophila* infection, J Infect Dis 186:274-280
- Weber, R.,** Pusterla, N., Loy, M., Leutenegger, C. M., Schar, G., Baumann, D., Wolfensberger, C. und Lutz, H. (2000): Serologic and clinical evidence for endemic occurrences of human granulocytic ehrlichiosis in North-Eastern Switzerland, Schweiz Med Wochenschr 130:1462-1470
- Webster, P.,** Ijdo, J. W., Chicoine, L. M. und Fikrig, E. (1998): The agent of Human Granulocytic Ehrlichiosis resides in an endosomal compartment, J Clin Invest 101:1932-1941
- Weisburg, W. G.,** Dobson, M. E., Samuel, J. E., Dasch, G. A., Mallavia, L. P., Baca, O., Mandelco, L., Sechrest, J. E., Weiss, E. und Woese, C. R. (1989): Phylogenetic diversity of the *Rickettsiae*, J Bacteriol 171:4202-4206
- Woese, C. R.** (1987): Bacterial evolution, Microbiol Rev 51:221-271
- Woessner, R.,** Gaertner, B. C., Grauer, M. T., Weber, K., Mueller-Lantzsch, N., Hunfeld, K. P. und Treib, J. (2001): Incidence and prevalence of infection with human granulocytic ehrlichiosis agent in Germany. A prospective study in young healthy subjects, Infection 29:271-273
- Wong, S. J. und Thomas, J. A.** (1998): Cytoplasmic, nuclear, and platelet autoantibodies in human granulocytic ehrlichiosis patients, J Clin Microbiol 36:1959-1963
- Yoshiie, K.,** Kim, H. Y., Mott, J. und Rikihisa, Y. (2000): Intracellular infection by the human granulocytic ehrlichiosis agent inhibits human neutrophil apoptosis, Infect Immun 68:1125-1133

Zhi, N., Rikihisa, Y., Kim, H. Y., Wormser, G. P. und Horowitz, H. W. (1997): Comparison of major antigenic proteins of six strains of the human granulocytic ehrlichiosis agent by Western immunoblot analysis, *J Clin Microbiol* 35:2606-2611