Postmortem Change in the Rat: A Histologic Characterization

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Download Postmortem Change In The Rat A Histologic Characterization

Forensic medicine explores the legal aspects of medicine, and medicolegal investigation of death is the most significant and crucial function of it. The nature of post mortem examinations are changing and the understanding of causes of death are evolving with the increase of knowledge, availability, and use of various analyses including genetic testing. Postmortem examination practice is turning into a more multidisciplinary approach for investigations, which are becoming more evidence based. Although there are numerous publications about forensic medicine and post mortem examination, this book aims to provide some basic information on post mortem examination and current developments in some important and special areas. It is considered that this book will be useful for forensic pathologists, clinicians, attorneys, law enforcement officers, and medical students.

Postmortem Drug Redistribution--Human Cases Related to Results in Experimental Animals - T. Hilberg - 1999

Femoral blood is widely accepted as the most reliable postmortem specimen for drug analysis in forensic toxicology. There is considerable evidence that the drug concentrations in peripheral blood samples are closer to the antemortem level than the concentration in cardiac blood. In the present study drug concentrations measured in postmortem femoral and/or heart blood samples from eight cases were compared with the concentrations found in serum samples from the same subject collected antemortem or perimortem. The drugs involved were amitriptyline, nortriptyline, imipramine, verapamil and chloroquine. Two additional cases with very early postmortem blood samples, as well as femoral blood samples from later autopsy, involved amphetamine and tetrahydrocannabinol. The results from the human cases were compared with results from rat experiments on similar drugs. The samples were analyzed by high performance liquid or gas chromatography. The cases with tricyclic antidepressants had a median postmortem femoral blood to antemortem serum drug concentration ratio of 3.3, the 95% reference range being from 1.1 to 6.0 (pooled data). Large variations of the ratios were seen. The extremes noted were a postmortem femoral blood to antemortem serum drug concentration ratio of 0.9 in a case with nortriptyline and 49 in the case with chloroquine. The low ratio in the former case could be due to attempted resuscitation, while the high ratio in the latter case is probably due to the extremely high apparent volume of distribution and a high blood to plasma concentration ratio for chloroquine. Accordingly, it is dubious whether the drug concentration found in femoral blood at autopsy can be accepted as being representative for the antemortem level. The results obtained from the human cases in the present study were generally in reasonable agreement with previous rat experiments, confirming that the animal studies when interpreted carefully, are indicative of the changes observed in man as well as a previous study in pigs. Studies on drug concentrations in pigs are not necessarily more representative for the findings in humans than experiments with a smaller animal like the rat. The postmortem concentration changes observed for tetrahydrocannabinol in man were found to be unpredictable, while in the accompanying experimental rat study there was a significant postmortem decrease in the tetrahydrocannabinol blood concentration measured in blood from the inferior vena cava. In special cases where the diagnosis of overdose is to be used as judicial evidence, a single sample of blood may prove insufficient.
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Introduction to Veterinary and Comparative Forensic Medicine  - John E. Cooper  

2008-04-15

Introduction to Veterinary and Comparative Forensic Medicine is an introduction to an emerging new specialty. It reflects the increasing demand for expert opinion by veterinarians and others in courts of law and elsewhere on such matters as: wildlife conservation, welfare of, and alleged cruelty to, animals, insurance, certification and malpractice, the identification of live and dead species or their derivatives. It also discusses and analyses current concern over possible links between domestic violence and abuse of animals. Throughout the book the emphasis is on the need for a systematic and thorough approach to forensic work. A particular feature is practical advice, with protocols on dealing with common problems, together with case studies, various appendices and an extensive bibliography. A vital reference for members of the veterinary profession, lawyers, enforcement bodies and welfare and conservation organisations. The comparative aspects provide an important source of information for those working in human forensic medicine and the biological sciences.

The Extent of Postmortem Drug Redistribution in a Rat Model  - T. Hilberg  

1993

An experimental rat model was developed to study postmortem changes of drug concentration after an acute overdose. Overnight fasted rats were fed 75 mg of amitriptyline (AMI) Two h after dosing, the rats were anesthetized and blood samples were drawn from the femoral vein (peripheral blood--PB) and the heart (HB) The rats were sacrificed by CO2 and left at room temperature for either 0.1, 0.5, 1, 2, 5, 10, 24, 48, or 96 h, when samples of heart blood, blood from the inferior vena cava (PB) and tissue samples from different liver lobes, heart, lungs, kidney, thymus muscles, and liver tissue were taken for analysis by high performance liquid chromatography. The AMI concentration in HB increased fairly rapidly within the first 2 h postmortem and from then the average ratio was 6.4 ± 0.8 (mean ± sem) (n = 31) In PB, the post/antemortem AMI concentration ratio followed an approximately exponential rise; at 2 h postmortem the ratio was 1.6 ± 0.3 (n = 5), and at 96 h 55.1 ± 23.8 (n = 4) For the main metabolite nortriptyline (NOR), the concentration changes followed the same pattern, but to a lesser extent. Among the tissues, the liver lobes had high, but variable drug concentrations; lobes lying closest to the stomach had the highest drug concentrations. The drug concentration in the lungs declined significantly. This animal model demonstrates postmortem drug concentration changes similar to those described in humans. Probable mechanisms include drug diffusion from the stomach and GI tract to the surrounding tissues and blood; and postmortem drug release from the lungs and possibly other drug-rich tissues into the blood.

An Animal Model of Postmortem Amitriptyline Redistribution  - T. Hilberg  

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The aim of this study was to investigate the postmortem redistribution of several drugs in a rat model and to examine if any of the pharmacological properties was related to the extent of this phenomenon. One of the followings: acetalaminophen, chloroquine, codeine, verapamil, amphetamine, mianserin, imipramine, nortriptyline, amitriptyline, verapamil, amphetamine, mianserin, and trimeprazine showed ratios of the same magnitude as nortriptyline. The postmortem to antemortem blood drug concentration ratios were close to 1.0 and tissue concentrations were low. An experimental rat model was developed to study postmortem changes of drug concentration after an acute overdose. Overnight fasted rats were fed 75 mg of amitriptyline (AMI) Two h after dosing, the rats were anesthetized and blood samples were drawn from the femoral vein (peripheral blood--PB) and the heart (HB) The rats were sacrificed by CO2 and left at room temperature for either 0.1, 0.5, 1, 2, 5, 10, 24, 48, or 96 h, when samples of heart blood, blood from the inferior vena cava (PB) and tissue samples from different liver lobes, heart, lungs, kidney, thymus muscles, and liver tissue were taken for analysis by high performance liquid chromatography. The AMI concentration in HB increased fairly rapidly within the first 2 h postmortem and from then the average ratio was 6.4 ± 0.8 (mean ± sem) (n = 31) In PB, the post/antemortem AMI concentration ratio followed an approximately exponential rise; at 2 h postmortem the ratio was 1.6 ± 0.3 (n = 5), and at 96 h 55.1 ± 23.8 (n = 4) For the main metabolite nortriptyline (NOR), the concentration changes followed the same pattern, but to a lesser extent. Among the tissues, the liver lobes had high, but variable drug concentrations; lobes lying closest to the stomach had the highest drug concentrations. The drug concentration in the lungs declined significantly. This animal model demonstrates postmortem drug concentration changes similar to those described in humans. Probable mechanisms include drug diffusion from the stomach and GI tract to the surrounding tissues and blood; and postmortem drug release from the lungs and possibly other drug-rich tissues into the blood.

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comprehensive pathology reference on rat strains for researchers across science and medicine using rat models in the laboratory. It offers readers an added emphasis on the Sprague-Dawley and Wistar rat strains that is consistent with current research across academia, government, and industry. In addition, the book provides standard diagnostic criteria, basic content on histology, histological changes that result from drug toxicity and neoplasms, pathology terminology, and four-color photographs from the NTP archive and database. With updated references and photographs, as well as coverage of all rat strains, this book is not only the standard in the field, but also an invaluable resource for toxicologists, biologists, and other scientists engaged in regulatory toxicology who must make the transition from pathology results to the promulgation of meaningful regulations. Contains full, four-color photographs from the NTP archive and database and coverage of all rat strains Provides an organ-by-organ and system-by-system approach that presents standard diagnostic criteria and basic content on histology and histological changes Includes comprehensive and detailed background incidence data Presents detailed descriptive content regarding changes in rat models during research

Boorman’s Pathology of the Rat - Andrew W. Suttle - 2017-12-18

Boorman’s Pathology of the Rat: Reference and Atlas, Second Edition, continues its history as the most comprehensive pathology reference on rat strains for researchers across science and medicine using rat models in the laboratory. It offers readers an added emphasis on the Sprague-Dawley and Wistar rat strains that is consistent with current research across academia, government, and industry. In addition, the book provides standard diagnostic criteria, basic content on histology, histological changes that result from drug toxicity and neoplasms, pathology terminology, and four-color photographs from the NTP archive and database. With updated references and photographs, as well as coverage of all rat strains, this book is not only the standard in the field, but also an invaluable resource for toxicologists, biologists, and other scientists engaged in regulatory toxicology who must make the transition from pathology results to the promulgation of meaningful regulations. Contains full, four-color photographs from the NTP archive and database and coverage of all rat strains Provides an organ-by-organ and system-by-system approach that presents standard diagnostic criteria and basic content on histology and histological changes Includes comprehensive and detailed background incidence data Presents detailed descriptive content regarding changes in rat models during research

Acta Histochemica Et Cytochemica - 1991

Acta Histochemica Et Cytochemica - 1991

Cumulated Index Medicus - 1992

Cumulated Index Medicus - 1992

Gastroenterology Abstracts and Citations - 1970

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Amino Acids - Alan A. Boulton - 1985-12-09

Techniques in the neurosciences are evolving rapidly. There are currently very few volumes dedicated to the methodology - played by neuroscientists, and those that are available often seem either out of date or limited in scope. This series is about the methods most widely used by modern-day neuroscientists and is written by their colleagues who are practicing experts. Volume 1 will be useful to all neuroscientists since it concerns those procedures used routinely across the widest range of subdisciplines. Collecting these general techniques together in a single volume strikes us not only as a service, but will no doubt prove of exceptional utilitarian value as well. Volumes 2 and 3 - scribe all current procedures for the analyses of amines and their metabolites and of amino acids, respectively. These collections will clearly be of value to all neuroscientists working in or contemplating research in these fields. Similar reasons exist for Volume 4 on receptor binding techniques since experimental - tails are provided for all types of ligand-receptor binding, including chapters on general principles, drug discovery and - vegetation, and a most useful appendix on computer programs for Scatchard, non-linear, and competitive displacement analyses. Volume 5 provides procedures for the assessment of enzymes - volatile in bioorganic analyses and in the NELJROMETHOS series will be useful to neurochemists, - pharmacologists, - physiologists, - anatomists, psychopharmacologists, psychiatrists, neurologists, and chemists (organic, analytical, pharmaceutical, medicinal), in fact, everyone involved in the neurosciences, both basic and
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Care and Use of Laboratory Animals - Fritz P. Gluckstein - 1990

Current Bibliographies in Medicine - 1988

Current Bibliographies in Medicine - 1988

Parkinson's Disease—II - C. E. Finch - 2013-03-09

These Proceedings emanate from the Second Tarbox Parkinson's Disease Symposium held February 2-4, 1978, at the SouthPark Inn in Lubbock, Texas. The Symposium was sponsored by the Tarbox Parkinson's Disease Institute and the Department of Pharmacology and Therapeutics of the Texas Tech University School of Medicine at Lubbock. The First Symposium took place in October, 1976. The Second Tarbox Parkinson's Disease Symposium boldly brought together investigators at the cutting edge of aging and neuroendocrine research and attempted to relate them to Parkinson's disease. Credit for the concept must go to the Program Chairman, Dr. David E. Potter. Once the plan was conceived the organizers relied heavily on the advice of Dr. Caleb E. Finch, whose counsel in developing the program was invaluable. The final verdict on the success of this daring venture must await the outcome of the publication of this Volume. Nevertheless, those in attendance could not fail but note the enthusiasm and excitement of the participants as their findings from the diverse disciplines of the neurological, aging, and endocrine sciences converged. This in itself is testimony that the Symposion accomplished some degree of success. The Tarbox Parkinson's Disease Institute was established in 1973 with funds appropriated by the State of Texas and is dedicated to research, patient care, and education in Parkinson's disease and related neurological disorders. The Institute is named after Mr.

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Haschek and Rousseaux's Handbook of Toxicologic Pathology - Wanda M. Haschek - 2001-10-16

A comprehensive understanding of toxicologic pathology is essential for those in industry, academia, and government who make decisions concerning the safety and efficacy of drugs and chemicals. Toxicologic pathology relies heavily on the fields of both toxicology and pathology, which are well covered individually in various texts and references; however, there are few texts that address the field of toxicologic pathology. The Handbook of Toxicologic Pathology fills this void and is thus essential for all health professionals within or interacting with the field of toxicologic pathology. This two-volume set provides the reader with a single reference for toxicologic pathology. Volume I, the book covers toxicologic pathology in its basic aspects, including its definition, the basic biochemical and morphologic mechanisms underlying the discipline, the basic practice of toxicologic pathology (including special techniques) and issues essential to the understanding of toxicologic pathology such as risk assessment, experimental design, and statistical analysis. Next, the book moves to specific issues affecting the "practice" toxicologic pathology, including issues such as knowledge management, regulatory affairs and writing pathology reports. Finally, Volume I closes with several chapters that deal with specific classes of environmental toxicants such as endocrine disruptors and heavy metals. Volume II addresses the toxicologic pathology in a thoroughly standardized systems manner, addressing the basic structure and function of a particular organ system, its response to toxic injury, mechanisms of injury and methods of evaluation of such injury. Key Features * Easy to find, up-to-date reference information * Graphic and photographic plates * Current hot topics and anticipated changes in toxicologic pathology * Standardized chapter format * Topics that are addressed in both a broad and deep manner, resulting in a stand alone text * Added coverage of important environmental toxicants * Chapters authored by internationally recognized experts and peer-reviewed

The Virtopsy Approach - Michael Thali - 2009-05-14

Charrad, badly decomposed, or mummified corpses, as well as those restrictions forced upon coroners by certain religious to perform, often adduced a legal impossibility to perform. In addition, lack of manpower among the personnel charged with performing autopsies frequently creates a backlog of cases in the coroner's office. This delay increases the likelihood that causes of death will go undetermined and criminal perpetrators will go unpunished. The solution can be found in what has come to be known as the virtopsy®, a minimally invasive and efficient way to perform an autopsy through state-of-the-art imaging-guided means. A term coined by noted forensic pathologist Richard Dirnhofer, virtopsy refers to "virtual autopsy," a modality that employs a spectrum of technologies...
particular organs and structures, and a section on molecular biology. High quality illustrations are included throughout and a color plate section is provided. A glossary, list of equipment suppliers, and "Quick Reference Section" are added features. The "Quick Reference Section" brings together all tables from the text, allowing readers to find data swiftly. The first volume in The Handbook of Experimental Animals Series, The Laboratory Rat, provides researchers in academia and industry using laboratory animals with comprehensive, practical information on the species. The Laboratory Rat has been divided into eight sections dealing with: * Strains and their selection for research * Housing and maintenance * Pathogens and diseases * Breeding and reproduction * Anatomy * Physiology * Procedures, including experimental surgery * Emerging experimental techniques, including genetic engineering and molecular technology Key Features * Provides a valuable, comprehensive reference source for anybody working with the laboratory rat * Formatted in a two-color, user-friendly layout * Includes high-quality illustrations throughout as well as a color plate section * Glossary * Tables in the text are also arranged into one Quick Reference Section for ease of access to the data * Appendix of equipment suppliers

**Autism** - Abha Chauhan - 2009-10-26
In 2007, the Centers for Disease Control and Prevention issued an autism alarm, estimating that one in 150 children may be affected by autism spectrum disorder. Autism has been treated mainly with technical approaches: principally applied behavior analysis and psychopharmacology. The findings in this book implicate oxidative stress as a common feature in autism, and support the claim that oxidative stress and intracellular redox imbalance can be induced or triggered in autism by exposure to certain environmental agents. Such findings could point the way to new treatment approaches in autism. Autism: Oxidative Stress, Inflammation, and Immune Abnormalities brings together a wealth of cutting-edge evidence that is already influencing how we treat this serious condition. It looks at the role of neuropathological abnormalities, genetics, and those factors common to oxidative stress such as inflammation, immune dysfunction, aberrant cellular signaling, and gene-environment interactions. Among dozens of research topics, this volume —Looks at intersecting factors such as the maternal immune environment and prenatal/postnatal environmental stressors Summarizes evidence for oxidative damage and inflammation in autism Introduces a PDD behavior inventory as a tool for assessing autism Considers autism as an aberrant adaptive response to neuroinflammation and oxidative stress Examines the role of abnormal calcium signaling and the hypothesis that it may represent a target for novel therapeutics Presents a hypothesis that autism arises from the dysregulation of a unified gutbrain system rather than originating in the brain alone Proposes the utility of using a biopsychosocial method to treat autism This book shows us that autism is not only developmental but also a chronic condition based on active pathophysiology, and that it is not only behavioral but also presents somatic and systemic features. The findings in these chapters support the theory that oxidative stress plays an important role in autism. They also point to the value of conducting in-depth mechanistic studies as a way to uncover new targets for therapeutic intervention in autism.

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graduate students in both academia and industry.

Vibrational Spectroscopy in Diagnosis and Screening - F. Severcan - 2012-06-15
In recent years there has been a tremendous growth in the use of vibrational spectroscopic methods for diagnosis
and screening. These applications range from diagnosis of disease states in humans, such as cancer, to rapid
identification and screening of microorganisms. The growth in such types of studies has been possible thanks to
advances in instrumentation and associated computational and mathematical tools for data processing and
analysis. This volume of Advances in Biomedical Spectroscopy contains chapters from leading experts who discuss
the latest advances in the application of Fourier transform infrared (FTIR), Near infrared (NIR), Terahertz and
Raman spectroscopy for diagnosis and screening in fields ranging from medicine, dentistry, forensics and aquatic
science. Many of the chapters have been written on sample preparation, data acquisition and data interpretation
that would be particularly valuable for new users of these techniques including established scientists and
graduate students in both academia and industry.

Experimental Neurochemistry - Abel Lajtha - 2013-03-14
The second volume of the Handbook does not parallel any volume of the first edition; it is one more sign, or
reflection, of the expansion of the field. By emphasizing the experimental approach, it illustrates the tools that
have recently become available for investigating the nervous system. Also, perhaps even more than other
volumes, it illustrates the multidisciplinary nature of the field, requiring multidisciplinary methodology. It is now
recognized that the availability of methodology is often the rate-limiting determinant of studies and that
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The Journal of Infectious Diseases - 1914
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Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia
University, N.Y., reprints. v. 14, 1914 - Columbia University College of Physicians and Surgeons. Dept. of
Pathology - 1914

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia
University, N.Y., reprints. v. 14, 1914 - Columbia University College of Physicians and Surgeons. Dept. of
Pathology - 1914

Forensic Anthropology - Sue Black - 2011-02-07
Advances in our ability to analyze information from skeletal remains and subsequent developments in the field of
forensic anthropology make it possible to identify more victims of homicides, mass-fatality disasters, and
 genocide. Summarizing the vast collection of international literature that has developed over the past decade,
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In Vitro Neurochemical Techniques - Alan A. Boulton - 1999
In Vitro Neurochemical Techniques is the third work updating and expanding the best-selling inaugural volume of Humana Press's warmly received Neuromethods series, General Neurochemical Techniques (vol. 1). The key techniques detailed in this new edition encompass the breadth of neurochemical and molecular neurobiology research, ranging from the isolation of neuronal genes and the study of their expression to the analysis of receptor-ligand interactions, to the characterization of the consequences of receptor activation. The methods include electrophysiological techniques to explore the functional properties of receptors present in the membranes of excitable cells, methods to isolate novel genes central to neurobiological processes, and protocols to perform in situ hybridization histochemistry. Other methods cover the measurement of changes in gene expression, the rapid identification of gene polymorphisms, and the identification and characterization of second messenger pathways. The companion volumes, In Vivo Neuromethods and Cell Neurobiology Techniques, cover both in vivo methods and in vitro cell neurobiology approaches. Like the original, all three cutting-edge works will prove exceptionally useful to those basic and clinical neuroscientists who want to expand the range of their current research or develop competence in complementary methods.

Psychopharmacology Abstracts - -- 1983

The Fetus and Independent Life - Katherine Elliott - 2009-09-14
The Novartis Foundation Series is a popular collection of the proceedings from Novartis Foundation Symposia, in which groups of leading scientists from a range of topics across biology, chemistry and medicine assembled to present papers and discuss results. The Novartis Foundation, originally known as the Ciba Foundation, is well known to scientists and clinicians around the world.

Psychopharmacology Bulletin -- 1985

Studies from the Dept. of Pathology - Columbia University. College of Physicians and Surgeons. Dept. of Pathology - 1914
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Psychopharmacology Bulletin -- 1985