

Contents

<i>Contributors</i>	ix
<i>Preface</i>	xiii
<i>Acknowledgements</i>	xv
Part I: Introduction	
1 Electrical burns: a historical review <i>T. Bernstein</i>	3
2 Industrial electrical accidents and their complications observed by Electricité de France <i>J. Cabanes</i>	15
3 The pathophysiology and clinical management of electrical injury <i>R.C. Lee</i>	33
Part II: Clinical manifestations and management	
4 Soft tissue patterns in acute electric burns <i>J.L. Hunt</i>	83
5 The spectrum of electrical injuries <i>E.A. Luce</i>	105
6 Electrical trauma: pathophysiology and clinical management <i>R.H. Demling</i>	122
7 Acute and delayed neurological sequelae of electrical injury <i>B.J. Grube & D.M. Heimbach</i>	133
8 Paediatric electrical burns <i>C.F. Keusch, G.H. Gifford & E. Eriksson</i>	153
9 Surgical technique for salvage of electrically damaged tissue <i>L.J. Gottlieb, J. Saunders & T.J. Krizek</i>	169
Part III: Tissue responses	
10 The role of arachidonic acid metabolism in the pathogenesis of electrical trauma <i>M.C. Robson, P.G. Hayward & J.P. Heggers</i>	179
11 Thermal damage: mechanisms, patterns and detection in electrical burns <i>P. Héroux</i>	189
	vii

viii	<i>Contents</i>	
12	Evaluation of electrical burn injury using an electrical impedance technique <i>M. Chilbert</i>	216
13	Impedance spectroscopy: the measurement of electrical impedance of biological materials <i>R. Schmukler</i>	239
14	Analysis of heat injury to the upper extremity of electrical shock victims: a theoretical model <i>B.I. Tropea & R.C. Lee</i>	254
	Part IV: Biophysical mechanisms of cellular injury	
15	Response of cells to supraphysiological temperatures: experimental measurements and kinetic models <i>E.G. Cravalho, M. Toner, D.C. Gaylor & R.C. Lee</i>	281
16	Cell membrane rupture by strong electric fields: prompt and delayed processes <i>J.C. Weaver</i>	301
17	An anisotropic, elastomechanical instability theory for electroporabilization of bilayer–lipid membranes <i>C. Maldarelli & K. Stebe</i>	327
18	Electrical injury to heart muscle cells <i>L. Tung</i>	361
19	Skeletal muscle cell membrane electrical breakdown in electrical trauma <i>D.C. Gaylor, D.L. Bhatt & R.C. Lee</i>	401
20	Theory of nonlinear conduction in cell membranes under strong electric fields <i>R.C. Lee & K. Prakah-Asante</i>	426
	<i>Index</i>	435