Pocket Reference to Renal Anemia

Second edition

Iain C Macdougall



Pocket reference to renal anemiaSecond edition

Pocket reference to renal anemia

Second edition

lain C Macdougall, BSc, MD, FRCP

Consultant Nephrologist and Professor of Clinical Nephrology Department of Renal Medicine King's College Hospital London, UK



Published by Springer Healthcare Ltd, 236 Gray's Inn Road, London, WC1X 8HB, UK.

www.springerhealthcare.com

© 2013 Springer Healthcare, a part of Springer Science+Business Media.

First edition 2003 Second edition 2013

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the copyright holder.

British Library Cataloguing-in-Publication Data.

A catalogue record for this book is available from the British Library.

ISBN 978 1 908517 74 6

Although every effort has been made to ensure that drug doses and other information are presented accurately in this publication, the ultimate responsibility rests with the prescribing physician. Neither the publisher nor the authors can be held responsible for errors or for any consequences arising from the use of the information contained herein. Any product mentioned in this publication should be used in accordance with the prescribing information prepared by the manufacturers. No claims or endorsements are made for any drug or compound at present under clinical investigation.

Project editor: Alla Zarifyan Designer: Joe Harvey Artworker: Sissan Mollerfors Production: Marina Maher

Printed in Great Britain by Latimer Trend

Contents

	Dedication	vii
	Author biography	ix
1	What is renal anemia?	1
	References	4
2	What is the cause of renal anemia?	5
	Erythropoietin deficiency	5
	Uremic inhibitors	7
	Inflammation	7
	Hepcidin	9
	Iron deficiency	10
	Hyperparathyroidism	10
	Aluminum toxicity	11
	Shortened red blood cell life span	12
	References	12
3	Stepwise approach to anemia management in patients	
	with chronic kidney disease	13
	Step 1: Exclude other causes of anemia	14
	Step 2: Iron management	14
	Step 3: Erythropoiesis-stimulating agent therapy	14
	Step 4: Blood transfusions	14
	References	14
4	Excluding other causes of anemia	15
	Reticulocyte count	17
	References	19

5	Iron management	21
	Iron deficiency: absolute versus functional	21
	Detection of iron deficiency	22
	Iron supplementation: oral versus intravenous	24
	References	27
6	Erythropoiesis-stimulating agent therapy	29
	Epoetins (including "biosimilars")	29
	Darbepoetin alfa	30
	Methoxypolyethylene glycol epoetin beta	30
	Peginesatide	31
	Normal Hematocrit Trial, CREATE, CHOIR, and TREAT	32
	Trigger hemoglobin concentration	34
	Target hemoglobin	34
	Erythropoiesis-stimulating agent therapy and the risk of malignancy	35
	Erythropoiesis-stimulating agent therapy and the risk of stroke	36
	Poor response to erythropoiesis-stimulating agent therapy	38
	Adjuvant therapy	41
	References	41
7	Blood transfusions	45
	References	47
8	Guidelines on the management of renal anemia	49
	References	51
9	What is the future of renal anemia management?	53
	Hypoxia-inducible factor stabilizers	53
	Hepcidin modulation	54
	Other strategies	55
	References	55
10	Conclusions	57
	Dos and don'ts in renal anemia management	58
	Learning points	59
	References	61

Dedication

Dedicated to my parents, Mary and Alasdair, my lovely wife, Penny, and our six children, Jennifer, Alan, Daniel, Inigo, Ella, and Nancy.