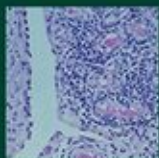


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Gout

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Gout

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OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
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First Edition published in 2016

Impression: 1

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Published in the United States of America by Oxford University Press
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data

Data available

Library of Congress Control Number: 2015949836

ISBN 978-0-19-874831-1

Printed and bound in Great Britain by
Clays Ltd, St Ives plc

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Symbols and Abbreviations

&	and
=	equal to
<	less than
>	greater than
≤	equal to or less than
≥	equal to or greater than
ACE	angiotensin-converting enzyme
ACR	American College of Rheumatology
AGREE	Acute Gout Flare Receiving Colchicine Evaluation
AHS	allopurinol hypersensitivity syndrome
APRT	adenine phosphoribosyltransferase
ASC	apoptosis-associated speck-like protein
ATP	adenosine triphosphate
BMI	body mass index
BSR	British Society for Rheumatology
CI	confidence interval
CK	creatinine kinase
CKD	chronic kidney disease
COX	cyclo-oxygenase
CPP	calcium pyrophosphate
CPPD	calcium pyrophosphate deposition
CrCL	creatinine clearance
CT	computed tomography
CVD	cardiovascular disease
d	day
DECT	dual energy CT
dL	decilitre
DRESS	drug reaction with eosinophilia and systemic symptoms
eGFR	estimated GFR
ESCISIT	EULAR Standing Committee for International Clinical Studies Including Therapeutic
eSNP	expression SNP
EULAR	European League Against Rheumatism

FBC	full blood count
FDA	Food and Drug Administration
FEUA	fractional excretion of uric acid
g	gram
G6PD	glucose-6-phosphate dehydrogenase
GAQ2.0	Gout Assessment Questionnaire version 2
GCKR	glucokinase regulatory
GFR	glomerular filtration rate
GI	gastrointestinal
GMP	guanosine monophosphate
GOMRICS	GOut MRI Cartilage Score
Gp	glycoprotein
GTP	guanosine triphosphate
GWAS	genome-wide association study
H ²	broad-sense heritability
HFI	hereditary fructose intolerance
HLF	hepatic leukemia factor
HPRT	hypoxanthine-guanine phosphoribosyltransferase
HR	hazard ratio
IA	intra-articular
IgA	immunoglobulin A
IgG	immunoglobulin G
IL	interleukin
IM	intra-muscular
IMP	inosine monophosphate
INR	international normalized ratio
IV	intravenous
kb	kilo-base
kg	kilogram
L	litre
LRP2	lipoprotein receptor-related protein 2
m	metre
mg	milligram
MI	myocardial infarction
μm	micron
mm	millimetre
mmHg	millimetre of mercury
mmol	millimole
MRI	magnetic resonance imaging
MSU	monosodium urate

MTPJ	metatarsophalangeal joint
MyD88	myeloid-dependent factor 88
NET	neutrophil extracellular traps
NHANES	National Health and Nutrition Examination Survey
NSAID	non-steroidal anti-inflammatory drug
OMERACT	Outcomes in Rheumatology Clinical Trials
OR	odds ratio
p	probability
PNP	purine nucleotide phosphorylase
PRPP	phosphoribosyl pyrophosphate
RA	rheumatoid arthritis
RAMRIS	Rheumatoid Arthritis Magnetic Resonance Imaging System
RR	relative risk
SCAR	severe cutaneous adverse reaction
SD	standard deviation
SJS/TEN	Stevens Johnson/toxic epidermal necrolysis
SNP	single nucleotide polymorphism
SSB	sugar-sweetened beverages
SU	serum urate
SUGAR	Study for Updated Gout Classification Criteria
TLR	toll-like receptor
UGT	uridine diphosphate-glucuronosyltransferase
UK	United Kingdom
ULT	urate-lowering therapy
US	ultrasonography
UUE	urinary uric acid excretion
VLDL	very low density lipoprotein

Chapter 1

Introduction to gout

Key points

- Gout is a common and treatable cause of musculoskeletal disability.
- There have been major advances in scientific understanding and treatment of gout in the last decade.
- Despite these advances, gout is often neglected and poorly managed.
- This handbook summarizes recent progress and provides a framework for effective gout management.

Gout is the most common form of inflammatory arthritis in adults. The prevalence of gout is rising, and now affects approximately one in 25 adults in the United States. The impact of gout on the individual, family, and wider community occurs due to the disease itself and the frequent associated co-morbid conditions. This disease causes flares of severe joint pain, structural bone and cartilage damage, loss of participation, and disability. Gout is also strongly associated with other important chronic conditions such as hypertension, chronic kidney disease, coronary artery disease, and type 2 diabetes.

The last decade has seen major progress in our understanding of gout. Advances in the basic biology of disease have included the genetics of hyperuricaemia and gout, the physiology of renal urate transport, and the understanding of gut urate transport as a mediator of serum urate. New advanced imaging methods represent exciting non-invasive tools for gout diagnosis. These imaging methods have allowed novel insights into the natural history of disease and emphasized that gout is a chronic disease of monosodium urate (MSU) crystal deposition. New imaging tools are also included in the 2015 American College of Rheumatology (ACR)/European League Against Rheumatism (EULAR) gout classification criteria. The understanding of MSU crystal-induced NLRP3 inflammasome activation led to recognition that IL-1 β is the central cytokine in acute gouty inflammation, which has translated into new therapies for treatment of acute gout flares. New urate-lowering drugs have been approved for the first time in half a century, providing wider treatment options than ever before. A number of other urate-lowering drugs are in pipeline development. The major rheumatology societies (ACR, EULAR, and the British Society for Rheumatology) have issued gout management guidelines. Although there are some regional differences, the central focus of all of these guidelines is long-term serum urate lowering.

Despite these exciting developments, gout remains a neglected condition in primary care, in rheumatology practice, and in basic and clinical research. Most people with gout do not receive effective treatment consistent with best-practice recommendations. Healthcare professionals, reflecting general public attitudes, often view gout as a humorous disease caused by personal excess. Such attitudes are an important barrier to empathic and effective management. Many other myths about gout management also exist, which create inconsistency, inadequate care, and confusion for people with gout.

Against this background of progress and challenges, we hope that readers will find this handbook to be a useful and up-to-date clinical resource on gout. We have focused on key aspects of the biology of the disease, relevant diagnostic tools, principles of gout management, and practical information to guide safe and effective prescribing of gout medications. We hope that this handbook will lead to updated knowledge, newfound enthusiasm for this disease, and, ultimately, improved management for many people with gout.