https://doi.org/10.33591/sfp.48.1.ur

A SELECTION OF TEN READINGS ON TOPICS RELATED TO CHRONIC DISEASE MANAGEMENT 2022

Some are available as free full text, and some require payment

Selection of readings made by A/Prof Goh Lee Gan

READING 1. AMBULATORY BLOOD PRESSURE MONITORING IN FRAIL GERIATRIC PATIENTS

Koudelka M,[1,2] Sovová E.[1] The Key Role of Ambulatory Blood Pressure Monitoring in the Detection of Masked Hypertension and Other Phenomena in Frail Geriatric Patients. Medicina (Kaunas). 2021 Nov 9;57(11):1221. PMID: 34833439.

URL: doi: 10.3390/medicina57111221. (Free full text)

Author information:
[1]Department of Exercise Medicine and Cardiovascular Rehabilitation, Palacký University Olomouc and University Hospital Olomouc, 77520 Olomouc, Czech Republic.
[2]Department of Internal Medicine, FRANZISKUS SPITAL GmbH, Landstraßer Hauptstraße 4a, 1030 Vienna, Austria.

ABSTRACT

Background and Objectives: This study aims to determine the prevalence of masked uncontrolled hypertension (MUH) in frail geriatric patients with arterial hypertension and thus show the role of ambulatory blood pressure monitoring (ABPM) since hypertension occurs in more than 80 percent of people ≥60 years and cardiovascular diseases are the main cause of death worldwide. Despite modern pharmacotherapy, use of combination therapy, and normal office blood pressure (BP), patients' prognoses might worsen due to inadequate therapy (never-detected MUH).

Materials and Methods: 118 frail geriatric patients (84.2±4.4 years) treated for arterial hypertension with office BP <140/90 mmHg participated in the study. 24-hour ABPM and clinical examination were performed.

Results: Although patients were normotensive in the office, 24-hour measurements showed that BP values in 72 percent of hypertensives were not in the target range: In those 24 hours, MUH was identified in 47 (40 percent) patients, in 48 (41 percent) patients during daytime, and nocturnal hypertension in 60 (51 percent) patients.

Conclusions: ABPM is essential for frail geriatric patients due to the high prevalence of MUH, which cannot be detected based on office BP measurements. ABPM also helps to detect exaggerated morning surge, isolated systolic hypertension, dipping/non-dipping, and set and properly manage adequate treatment, which reduces incidence of cardiovascular events and contributes to decreasing the financial burden of society.

READING 2. HOME BP MONITORING – CURRENT STATUS

Kario K.[1,2] Home Blood Pressure Monitoring: Current Status and New Developments. Am J Hypertens. 2021 Aug 9;34(8):783-794. PMID: 34431500.

URL: doi: 10.1093/ajh/hpab017. (Free full text)

Author information:
[1]Division of Cardiovascular Medicine, Department of Medicine, Jichi Medical University School of Medicine, Shimotsuke, Tochigi, Japan.
[2]The Hypertension Cardiovascular Outcome Prevention and Evidence in Asia (HOPE Asia) Network, Tokyo, Japan.

ABSTRACT

Home blood pressure monitoring (HBPM) is a reliable, convenient, and less costly alternative to ambulatory blood pressure monitoring (ABPM) for the diagnosis and management of hypertension. Recognition and use of HBPM have dramatically increased over the last 20 years and current guidelines make strong recommendations for the use of both HBPM and ABPM in patients with hypertension. The accuracy and reliability of home blood pressure (BP) measurements require the

use of a validated device and standardised procedures, and good patient information and training. Key HBPM parameters include morning BP, evening BP, and the morning-evening difference. In addition, newer semi-automatic HBPM devices can also measure nighttime BP at fixed intervals during sleep. Advances in technology mean that HBPM devices could provide additional relevant data (e.g., environmental conditions) or determine BP in response to a specific trigger (e.g., hypoxia, increased heart rate). The value of HBPM is highlighted by a growing body of evidence showing that home BP is an important predictor of target organ damage, and cardiovascular disease (CVD)- and stroke-related morbidity and mortality, and provides better prognostic information than office BP. In addition, the use of HBPM to monitor antihypertensive therapy can help to optimise reductions in BP, improve BP control, and reduce target organ damage and cardiovascular risk. Overall, HBPM should play a central role in the management of patients with hypertension, with the goal of identifying increased risk and predicting the onset of CVD events, allowing proactive interventions to reduce risk and eliminate adverse outcomes.

READING 3. BP PHENOTYPES IN GENERAL MIDDLE-AGED POPULATION

Lin YT,[1,2,3] Lampa E,[1] Fall T,[1] Engström G,[4] Sundström J.[1,5] Blood pressure phenotypes based on ambulatory monitoring in a general middle-aged population. Blood Press. 2021 Aug;30(4): 237-249.

URL: doi: 10.1080/08037051.2021.1903302. (Payment required)

Author information:
[1]Department of Medical Sciences, Uppsala University, Uppsala, Sweden.
[2]Department of Family Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan.
[3]Faculty of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan.
[4]Department of Clinical Sciences, Cardiovascular Epidemiology, Lund University, Malmö, Sweden.
[5]The George Institute for Global Health, University of New South Wales, Sydney, Australia.

ABSTRACT

BACKGROUND: Ambulatory blood pressure monitoring (ABPM) is increasingly recommended for clinical use, but more knowledge about the prevalence and variability in ABPM-derived phenotypes in the general population is needed. We describe these parameters in the community-based Swedish CArdioPulmonary bioImage Study (SCAPIS) cohort.

METHODS: We examined 5,881 men and women aged 50-64 with 24-hour ABPM recordings using validated monitors. ABPM phenotypes were defined according to European guidelines. White coat hypertension was defined as elevated office BP (≥140/90 mmHg) with normal mean ambulatory BP (<135/85 mmHg in daytime, <120/70 mmHg at nighttime, <130/80 mmHg over 24 hours); and masked hypertension as normal office BP (<140/90 mmHg) with elevated mean ambulatory BP (≥135/85 mmHg in daytime, ≥120/70 mmHg at nighttime, ≥130/80 mmHg over 24 hours). Blood pressure variability was assessed using the coefficient of variation (CV), standard deviation (SD), and average real variability.

RESULTS: Based on the ABPM recordings, 36.9 percent of participants had 24-hour hypertension, 40.7 percent had daytime hypertension, and 37.6 percent nocturnal hypertension. Among participants treated with anti-hypertensive drugs, one in three had elevated office blood pressures, and more than half had elevated 24-hour, daytime, or nocturnal blood pressures. Among participants without anti-hypertensive drugs, only one in six had elevated office blood pressures, but one in three had elevated 24-hour, daytime, or nocturnal blood pressures. Men had higher 24-hour blood pressures and more masked hypertension but less white-coat hypertension than women. The prevalence of white-coat hypertension increased with age, but not the prevalence of masked hypertension. A positive association between blood pressure level and variability was observed, and within-person and between-person SD and CV were of similar magnitude. The variance in ABPM on repeated measurements was substantial.

CONCLUSIONS: In the middle-aged general population, masked hypertension is an underappreciated problem on the population level.

READING 4. AMBULATORY BP MONITORING IN METABOLIC SYNDROME

Huang JF,[1] Li Y,[1] Shin J,[2] Chia YC,[3,4] Sukonthasarn A,[5] Turana Y,[6] Chen CH,[7,8,9] Cheng HM,[7,8,9,10] Ann Soenarta A,[11] Tay JC,[12] Wang TD,[13,14] Kario K,[15] Wang JG[1]; HOPE Asia Network. Characteristics and control of the 24-hour ambulatory blood pressure in patients with metabolic syndrome. J Clin Hypertens (Greenwich). 2021 Mar;23(3):450-456. PMID: 33629806

URL: doi: 10.1111/jch.14229. (Free full text)

Author information:
[1]Department of Cardiovascular Medicine, Shanghai Key Lab of Hypertension, The Shanghai Institute of Hypertension, Ruijin Hospital, Shanghai Jiaotong University School of Medicine, Shanghai, China.
[2]Faculty of Cardiology Service, Hanyang University Medical Center, Seoul, Korea.
[3]Department of Medical Sciences, School of Healthcare and Medical Sciences, Sunway University, Bandar Sunway, Malaysia.
[4]Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia.
[5]Department of Internal Medicine, Cardiology Division, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand.
[6]School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia.
[7]Institute of Public Health and Community Medicine Research Center, National Yang-Ming University School of Medicine, Taipei, Taiwan.
[8]Department of Medicine, Division of Cardiology, Taipei Veterans General Hospital, Taipei, Taiwan.
[9]Faculty of Medicine, National Yang-Ming University School of Medicine, Taipei, Taiwan.
[10]Department of Medical Education, Center for Evidence-based Medicine, Taipei Veterans General Hospital, Taipei, Taiwan.
[11]Department of Cardiology and Vascular Medicine, Faculty of Medicine, University of Indonesia-National Cardiovascular Center, Harapan Kita, Jakarta, Indonesia.
[12]Department of General Medicine, Tan Tock Seng Hospital, Singapore, Singapore.
[13]Department of Internal Medicine, Cardiovascular Center and Division of Cardiology, National Taiwan University Hospital, Taipei City, Taiwan.
[14]Department of Internal Medicine, Division of Hospital Medicine, National Taiwan University Hospital, Taipei City, Taiwan.
[15]Department of Medicine, Division of Cardiovascular Medicine, Jichi Medical University School of Medicine, Tochigi, Japan.

ABSTRACT
Asian countries are facing an increasing prevalence of metabolic syndrome (MetS), which may aggravate the burden of cardiovascular diseases in this region. MetS is closely associated with ambulatory blood pressure (BP). Patients with MetS, compared to those without, had a twofold higher risk of new-onset office, home, or ambulatory hypertension. Furthermore, the risk of new-onset MetS in patients with white-coat, masked, and sustained hypertension was also doubled compared to normotensives. High-risk masked hypertension and blunted nighttime BP dipping are common in patients with MetS, suggesting perfect 24-hour BP control with long-acting antihypertensive drugs and early initiation of combination therapy might be especially important for patients with MetS.

READING 5. TYPE 2 DIABETES MANAGEMENT IN CHRONIC KIDNEY DISEASE

Triozzi JL,[1] Parker Gregg L,[2,3,4] Virani SS,[5,6,7,8] Navaneethan SD.[3,4,9,10] Management of type 2 diabetes in chronic kidney disease. BMJ Open Diabetes Res Care. 2021 Jul;9(1):e002300. PMID: 34312158.

URL: doi: 10.1136/bmjdrc-2021-002300. (Free full text)

Author information:
[1]Department of Medicine, Baylor College of Medicine, Houston, Texas, USA.
[2]VA Health Services Research and Development Center for Innovations in Quality, Effectiveness and Safety, Houston, Texas, USA.
[3]Selzman Institute for Kidney Health, Section of Nephrology, Department of Medicine, Baylor College of Medicine, Houston, Texas, USA.

[4]Section of Nephrology, Michael E DeBakey VA Medical Center, Houston, Texas, USA.
[5]Health Policy, Quality & Informatics Program, Michael E DeBakey VA Medical Center Health Services Research & Development Center for Innovations, Houston, Texas, USA.
[6]Section of Health Services Research, Department of Medicine, Baylor College of Medicine, Houston, Texas, USA.
[7]Section of Cardiology, Michael E DeBakey VA Medical Center, Houston, Texas, USA.
[8]Section of Cardiovascular Research, Department of Medicine, Baylor College of Medicine, Houston, Texas, USA.
[9]VA Health Services Research and Development Center for Innovations in Quality, Effectiveness and Safety, Houston, Texas, USA sankar.navaneethan@bcm.edu.
[10]Institute of Clinical and Translational Research, Baylor College of Medicine, Houston, Texas, USA.

ABSTRACT
The management of patients with type 2 diabetes and chronic kidney disease (CKD) encompasses lifestyle modifications, glycaemic control with individualised HbA1c targets, and cardiovascular disease risk reduction. Metformin and sodium-glucose cotransporter-2 inhibitors are first-line agents. Glucagon-like peptide-1 receptor agonists are second-line agents. The use of other antidiabetic agents should consider patient preferences, comorbidities, drug costs, and the risk of hypoglycaemia. Renin-angiotensin-aldosterone system inhibitors are strongly recommended for patients with diabetes, hypertension, and albuminuria. Non-steroidal mineralocorticoid receptor antagonists, which pose less risk of hyperkalaemia than steroidal agents, are undergoing further evaluation among patients with diabetic kidney disease. Here, we discuss important advancements in the management of patients with type 2 diabetes and CKD.

READING 6. USE OF SGLT-2 INHIBITORS IN TYPE 2 DIABETES AND KIDNEY DISEASE – ASIAN PERSPECTIVE

Khoo CM,[1] Deerochanawong C,[2] Chan SP,[3] Matawaran B,[4] Sheu WH,[5] Chan J,[6] Mithal A,[7] Luk A,[6] Suastika K,[8] Yoon KH,[9] Ji L,[10] Man NH,[11] Pollock C.[12] Use of sodium-glucose co-transporter-2 inhibitors in Asian patients with type 2 diabetes and kidney disease: An Asian perspective and expert recommendations. Diabetes Obes Metab. 2021 Feb;23(2):299-317. PMID: 33155749.

URL: doi: 10.1111/dom.14251. (Free full text)

Author information:
[1]National University of Singapore, Singapore, Singapore.
[2]Rajavithi Hospital, College of Medicine, Rangsit University, Bangkok, Thailand.
[3]Department of Medicine, University of Malaya Medical Center, Kuala Lumpur, Malaysia.
[4]Department of Medicine, Section of Endocrinology, Diabetes and Metabolism, University of Santo Tomas Hospital, Manila, Philippines.
[5]Division of Endocrinology and Metabolism, Department of Internal Medicine, Taichung Veterans General Hospital, Taichung, Taiwan.
[6]Department of Medicine and Therapeutics, Hong Kong Institute of Diabetes and Obesity and Li Ka Shing Institute of Health Science, The Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong.
[7]The Medicity, Gurgaon, India.
[8]Faculty of Medicine, Udayana University, Sanglah General Hospital, Bali, Indonesia.
[9]Department of Endocrinology & Metabolism, Seoul St Mary's Hospital, The Catholic University of Korea, Seoul, South Korea.
[10]Peking University People's Hospital, Peking, China.
[11]FV Hospital, Ho Chi Minh City, Vietnam.
[12]The University of Sydney School of Medicine, Sydney, New South Wales, Australia.

ABSTRACT
Early onset of type 2 diabetes and a high prevalence of comorbidities predispose the Asian population to a high risk for, and rapid progression of, diabetic kidney disease (DKD). Apart from renin-angiotensin system inhibitors, sodium-glucose co-transporter-2 (SGLT-2) inhibitors have been shown to delay renal disease progression in patients with DKD. In this review article, we consolidate the existing literature on SGLT-2 inhibitor use in Asian patients with DKD to establish contemporary guidance for clinicians. We extensively reviewed recommendations from international and regional guidelines, data from studies on Asian patients with DKD, global trials (DAPA-CKD, CREDENCE and DELIGHT), and cardiovascular outcomes trials. In patients with DKD, SGLT-2 inhibitor therapy significantly reduced albuminuria and the risk of hard renal outcomes (defined as the onset of end-stage kidney disease, substantial decline in renal function from

baseline, and renal death), cardiovascular outcomes, and hospitalisation for heart failure. In all the cardiovascular and renal outcomes trials, there was an initial decline in the estimated glomerular filtration rate (eGFR), which was followed by a slowing in the decline of renal function compared with that seen with placebo. Despite an attenuation in glucose-lowering efficacy in patients with low eGFR, there were sustained reductions in body weight and blood pressure, and an increase in haematocrit. Based on the available evidence, we conclude that SGLT-2 inhibitors represent an evidence-based therapeutic option for delaying the progression of renal disease in Asian patients with DKD and preserving renal function in patients at high risk of kidney disease.

READING 7. GOUT FLARE BURDEN, DIAGNOSIS, AND MANAGEMENT

Kumar M,[1,2] Manley N,[3] Mikuls TR.[4,5] Gout Flare Burden, Diagnosis, and Management: Navigating Care in Older Patients with Comorbidity. Drugs Aging. 2021 Jul;38(7):545-557. PMID: 34105100

URL: doi: 10.1007/s40266-021-00866-2. Epub 2021 Jun 9. (Payment required)

Author information:
[1]Division of Rheumatology, Department of Internal Medicine, University of Nebraska Medical Center, 986270 Nebraska Medical Center, Omaha, NE, 68198-6270, USA.
[2]Medicine and Research, VA Nebraska-Western Iowa Health Care System, Omaha, NE, USA.
[3]Division of Geriatrics, Department of Internal Medicine, University of Nebraska Medical Center, Omaha, NE, USA.
[4]Division of Rheumatology, Department of Internal Medicine, University of Nebraska Medical Center, 986270 Nebraska Medical Center, Omaha, NE, 68198-6270, USA. tmikuls@unmc.edu.
[5]Medicine and Research, VA Nebraska-Western Iowa Health Care System, Omaha, NE, USA. tmikuls@unmc.edu.

ABSTRACT
Gout is the most common form of inflammatory arthritis, and its incidence is highest in middle-aged and older patients. Adding to the diagnostic complexity, up to 50 percent of patients aged >65 years present atypically, with subacute oligo- or polyarticular flares. Comorbidity and polypharmacy, common in older populations, affect real-world treatment decisions in gout management, and no specific guidelines are available to address these issues in these at-risk groups. Despite the growing public health burden posed by gout, suboptimal management has led to increased morbidity and substantial healthcare utilisation and cost burden, as reflected by an increased incidence of emergency department visits and hospitalisations in recent years. Colchicine, nonsteroidal anti-inflammatory drugs, or glucocorticoids (oral, intraarticular, or intramuscular) should be considered as first-line agents for gout flare management. Urate-lowering therapy, with the goal of lowering and maintaining serum urate concentrations at <6 mg/dL (<360 μmol/L), is recommended to achieve optimal outcomes, including regression of tophi, reduction (or elimination) of flares, and reductions in total urate burden. In this review, we summarise the current burden posed by gout and discuss best practices in its diagnosis and management, focusing on best practices in the context of gout flare in older patients with comorbid conditions.

READING 8. GOUT – RAPID EVIDENCE REVIEW

Clebak KT,[1] Morrison A,[1] Croad JR.[1] Gout: Rapid Evidence Review. Am Fam Physician. 2020 Nov 1;102(9):533-538. PMID: 33118789

URL: (Free full text)

Author information:
[1]Penn State Health Milton S Hershey Medical Center, Hershey, PA, USA.

ABSTRACT
Gout is caused by monosodium urate crystal deposition in joints and tissues. Risk factors include the male sex; obesity; hypertension; alcohol intake; diuretic use; a diet rich in meat and seafood; chronic kidney disease; a diet heavy in fructose-rich food and beverages; being a member of certain ethnic groups, including Taiwanese, Pacific Islander, and New Zealand Maori; and living in high-income countries. Gout is characterised by swelling, pain, or tenderness in a peripheral joint or bursa, including the development of a tophus. Diagnosis of gout can be made using several validated clinical prediction

rules. Arthrocentesis should be performed when suspicion for an underlying septic joint is present; synovial fluid or tophus analysis should be performed if the diagnosis is uncertain. Colchicine, nonsteroidal anti-inflammatory drugs, and corticosteroids relieve pain in adults with acute gout episodes. Indications for long-term urate-lowering therapy include chronic kidney disease, two or more flare-ups per year, urolithiasis, the presence of tophus, chronic gouty arthritis, and joint damage. Allopurinol and febuxostat are used to prevent flare-ups, although febuxostat is associated with an increase in all-cause and cardiovascular mortality and is therefore not routinely recommended.

READING 9. NAFLD AND CARDIOVASCULAR DISEASES

Polyzos SA,[1] Kechagias S,[2] Tsochatzis EA.[3] Review article: non-alcoholic fatty liver disease and cardiovascular diseases: associations and treatment considerations. Aliment Pharmacol Ther. 2021 Oct;54(8):1013-1025. PMID: 34416040.

URL: doi: 10.1111/apt.16575. (Free full text)

Author information:
[1]First Laboratory of Pharmacology, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece.
[2]Department of Health, Medicine, and Caring Sciences, Linköping University, Linköping, Sweden.
[3]UCL Institute for Liver and Digestive Health, Royal Free Hospital and UCL, London, UK.

ABSTRACT

BACKGROUND: There are increasing data on the association between non-alcoholic fatty liver disease (NAFLD) and cardiovascular diseases (CVD).

AIM: To summarise evidence on the association between NAFLD and CVD in the clinical setting and provide potential therapeutic implications.

METHODS: We searched PubMed. Evidence was primarily derived from meta-analyses. Then, if data were insufficient, from clinical trials, and then from observational studies.

RESULTS: NAFLD has been linked to arterial hypertension, arterial stiffness, atherosclerosis, coronary artery disease, atrial fibrillation, and aortic valvular sclerosis. Advanced liver fibrosis is a crucial prognostic factor for end-stage liver disease and for cardiovascular and overall mortality. Weight loss through lifestyle modifications (diet and exercise) remains the cornerstone of the management of both NAFLD and CVD, but is difficult to achieve and possibly more difficult to sustain long-term. Therefore, pharmacological management of NAFLD seems to be important, although no licenced medication currently exists. Pioglitazone, proposed for non-alcoholic steatohepatitis (NASH) by most guidelines, increases weight and should be avoided in congestive heart failure. Statins should not be avoided in NAFLD patients at risk for CVD. Glucagon-like peptide 1 receptor agonists and sodium-glucose cotransporter-2 inhibitors, two classes of anti-diabetic drugs, have shown promising results in NAFLD and CVD, but more studies with hard end points are needed. Obeticholic acid, a promising medication for NASH under investigation, should be carefully considered, owing to its adverse effect on lipid profile.

CONCLUSIONS: NAFLD is associated with CVD, which may have certain clinical and therapeutic implications.

READING 10. MANAGEMENT OF PATIENTS WITH NAFLD

Neilson LJ,[1,2] Macdougall L,[1] Lee PS,[1] Hardy T,[1] Beaton D,[3] Chandrapalan S,[4] Ebraheem A,[5] Hussien M,[5] Galbraith S,[6] Looi S,[4] Oxenburgh S,[3] Phaw NA,[1,2] Taylor W,[7] Haigh L,[1,8] Hallsworth K,[1,8] Mansour D,[5] Dyson JK,[1,8] Masson S,[1,8] Anstee Q,[1,8] McPherson S.[1,8] Implementation of a care bundle improves the management of patients with non-alcoholic fatty liver disease. Frontline Gastroenterol. 2021 Jan 4;12(7):578-585. PMID: 34917315.

URL: doi: 10.1136/flgastro-2020-101480. (Free full text)

Author information:
[1]Liver Unit, Newcastle Upon Tyne Hospitals NHS Foundation Trust, Newcastle-upon-Tyne, UK.
[2]Department of Gastroenterology, South Tyneside and Sunderland NHS Foundation Trust, South Shields, UK.
[3]Department of Gastroenterology, University Hospital of North Tees, Stockton-on-Tees, UK.
[4]Department of Gastroenterology, University Hospital of North Durham, Durham, UK.
[5]Department of Gastroenterology, Gateshead Health NHS Foundation Trust, Gateshead, UK.
[6]Department of Gastroenterology, Northumbria Healthcare NHS Foundation Trust, North Shields, UK.
[7]Department of Gastroenterology, Darlington Memorial Hospital, Darlington, UK.
[8]Translational and Clinical Research Institute, Newcastle University, Newcastle-upon-Tyne, UK.

ABSTRACT

BACKGROUND: Non-alcoholic fatty liver disease (NAFLD) is common and is associated with liver-related and cardiovascular-related morbidity. Our aims were: (1) to review the current management of patients with NAFLD attending hospital clinics in Northeast England (NEE) and assess the variability in care; (2) develop a NAFLD "care bundle" to standardise care; and (3) to assess the impact of implementation of the NAFLD care bundle.

METHODS: A retrospective review was conducted to determine baseline management of patients with NAFLD attending seven hospitals in NEE. A care bundle for the management of NAFLD was developed including important recommendations from international guidelines. Impact of implementation of the bundle was evaluated prospectively in a single centre.

RESULTS: Baseline management was assessed in 147 patients attending gastroenterology, hepatology, and a specialist NAFLD clinic. Overall, there was significant variability in the lifestyle advice given and management of metabolic risk factors, with patients attending an NAFLD clinic significantly more likely to achieve >10 percent body weight loss and have metabolic risk factors addressed. Following introduction of the NAFLD bundle, 50 patients were evaluated. Use of the bundle was associated with significantly better documentation and implementation of most aspects of patient management including management of metabolic risk factors, documented lifestyle advice, and provision of NAFLD-specific patient advice booklets.

CONCLUSION: The introduction of an outpatient "care bundle" led to significant improvements in the assessment and management of patients with NAFLD in the NEE and could help improve and standardise care if used more widely.