New guidelines from the European Society of Cardiology

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In May, the European Society of Cardiology published updated guidelines on cardiovascular disease prevention and acute and chronic heart failure. This article summarises these two comprehensive documents and discusses how useful they are likely to be to clinicians in the UK.

The European Society of Cardiology (ESC) has updated its guidelines on the prevention of cardiovascular disease (CVD) and on acute and chronic heart failure. More like manuals than guidelines, both documents run to about 80 pages (excluding online addenda) and are supported by a total of 1200 references. The list of contributors includes prominent cardiologists and other specialists, and the CVD prevention guideline was produced jointly with several other European societies. They are undoubtedly authoritative but, as the NHS follows NICE or SIGN guidance, are they relevant to clinicians in the UK?

First, they are comprehensive: within a single document, each includes topics that are spread over several separate UK guidelines. This, of course, is also a weakness because it makes them more difficult to revise. Second, both are revisions to 2012 publications and they are (for the moment) up to date: some current NICE and SIGN guidance dates back to the late 2000s, although much has been updated within the last two to three years. Third, they offer a different perspective because they are not tied to a single healthcare system: they may complement UK practice or challenge assumptions about care and there is less prominence given to value for money, which pervades UK guidance. There has, however, been domestic input: four of the 26 main authors of the CVD guideline and five of the 21 who wrote the heart failure guideline are from the UK. All in all, for clinicians who have the time to read them, the European guidelines will be informative.

Cardiovascular disease prevention in clinical practice

The CVD prevention guideline follows the format of the previous version in having three main sections: who will benefit from prevention, how to intervene and where to intervene.
Who will benefit?

Individuals who will probably benefit from interventions to prevent CVD can be identified using risk assessment tools, their family history and from risk factors such as co-morbidities and age. The ESC favours assessing the 10-year risk of cardiovascular mortality using the Systematic Coronary Risk Evaluation (SCORE) tool (see Figure 1) rather than the risk of cardiovascular events with QRISK, as recommended by NICE.\(^3\) QRISK is derived from a UK population and NICE recommended it in 2014 after careful comparison with the Framingham Heart Study database; it did not review SCORE.

The ESC says its choice of mortality as an endpoint rather than total events was “deliberate although not universally popular”, its argument being that the detection of events is sensitive to definitions and methodology. It also acknowledges that SCORE has been validated in different European populations but not in different ethnic groups (though correction factors to the risk score are provided) and that it covers a more limited age range than QRISK (40–65 vs 35–74 years).

More fundamentally, it adds that women, older people and ethnic minorities are still underrepresented in clinical trials.

Family history is a valuable risk modifier but the clinical role of genetic markers remains uncertain. The same applies to biomarkers such as C-reactive protein. By contrast, negative psychosocial factors and poor mental health indicate a higher cardiovascular risk, and additionally act as barriers to adherence and efforts to change lifestyle, though the value of screening has not been demonstrated.

Similarly, screening with imaging techniques has not yet been rigorously tested. It is clear that co-morbidities such as chronic kidney disease, cancer, rheumatoid arthritis, acute respiratory infection, erectile dysfunction and sleep apnoea are associated with increased risk – though whether to screen and what to do about the results is not consistently clear. It is refreshing to read that “recommendations of cholesterol-lowering treatment in the elderly should be followed with caution and common sense.” NICE acknowledges this is a topic that requires further research but is slightly more hawkish, recommending that prescribers take life expectancy into account and noting that “additional factors” should be considered for people aged 85 years or older.

How to intervene

Interventions should be made at the levels of the individual and the population. The section on individual intervention is the largest in the guideline: about one-third of the main document is devoted to tackling risk factors, and an online addendum of similar size addresses disease-specific management. There are specific and detailed recommendations about addressing behaviour change, managing psychosocial factors and increasing physical activity (“a mainstay of CV prevention”). The ESC is as strong as NICE on smoking cessation though its tone on e-cigarettes is mixed. They “may help in smoking cessation but should be covered by the same marketing restrictions as cigarettes” because evidence supporting their use is not strong and long-term safety is unknown.

Diet is another evolving topic. The National Obesity Forum controversially challenged current dietary advice – in particular, suggesting it is not necessary to limit saturated fat intake.\(^4,5\) The ESC does not limit total fat intake but recommends saturated fats should account for less than 10 per cent of energy intake (vs NICE’s 7 per cent). Generally, its thinking about a healthy diet and the threat posed by obesity chimes with prevailing opinion in the UK, adding that “sugar-sweetened soft drinks and alcoholic beverages consumption must be discouraged.”

Elsewhere, the detail of the ESC guideline may differ from that of NICE guidance but the direction is the same. For example, the ESC’s targets for lowering raised lipid levels are absolute concentrations of low-density lipoprotein (LDL) cholesterol rather than the relative reduction in non-high-density lipoprotein (non-HDL) chole-
terol favoured by NICE. These thresholds are combined with total cardiovascular risk scores to propose different intensities of intervention. Conversely, the ESC supports the use of statins in general whereas NICE specifically recommends atorvastatin.

Guidance on the treatment of diabetes and hypertension and the use of anti-platelet therapy are similar to UK practice and are covered in the main document. Specific advice covering patients with atrial fibrillation, coronary artery disease, chronic heart failure, cerebrovascular disease and peripheral artery disease is provided in a separate addendum.

Advice on population-level interventions shows that public debate has been the same in Europe and the UK, though post-referendum outcomes may not turn out the same. “Structural measures such as product reformulation, limitations on marketing and taxes on unhealthy foods, subsidising the costs of healthier foods and consumer-friendly nutrition labelling will improve healthy food choices,” the ESC states. Other population-wide approaches to controlling tobacco and alcohol use, healthy workplaces and encouraging physical activity, broadly match the most optimistic aspirations of UK public health campaigners, though some have already been achieved here (notably, plain cigarette packaging).

Where to intervene
In a word, everywhere. Preventing CVD is a matter for everyone – all health professionals in both primary and secondary care, government agencies at all levels, and nongovernment bodies such as health charities and professional associations have a role in promoting a healthy lifestyle and creating healthy environments.

Diagnosis and treatment of acute and chronic heart failure
This update, which covers the topics of two NICE clinical guidelines, introduces a new subgroup of patients. Until now, patients with heart failure have been categorised as those with left ventricular dysfunction (ejection fraction <40 per cent, the category for which most clinical trial evidence exists) and those with preserved left ventricular function. The ESC has created a new category of “mid-range” patients with ejection fraction of 40–49 per cent to define the “grey area” between the two established categories. This recognises that aspects of diastolic and systolic dysfunction are evident with preserved and reduced ejection fraction, and patients with mid-range ejection fraction will “most probably have primarily mild systolic dysfunction, but with features of diastolic dysfunction.” The ESC does not make separate recommendations for management but hopes its initi-

ative will stimulate research in this group of patients.

A second innovation is an algorithm for the diagnosis of heart failure of nonacute onset (see Figure 2). This recommends assessing the probability of heart failure according to clinical history, physical examination and an ECG. If at least one of several diagnostic indicators is present, the next step is measurement of B-type natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT-proBNP). Heart failure is considered unlikely if BNP is <35pg/ml or NT-proBNP is <125pg/ml (the upper limits of normal) whereas NICE recommends excluding heart failure if BNP is <100pg/ml or NT-proBNP is <400pg/ml in an untreated patient.

The ESC identifies strategies that it believes will delay or prevent the development of overt heart failure or prevent death before the onset of symptoms. These include prescribing a statin and an ACE inhibitor for people with risk factors but no evidence of left ventricular systolic dysfunction, and considering empagliflozin for people with type 2 diabetes because it has been shown to reduce mortality and admissions for heart failure.

Advice on first-line pharmacological treatment of heart failure with reduced ejection fraction recommends an ACE inhibitor and a beta-blocker; a diuretic should be offered to reduce symptoms. Spironolactone or eplerenone are recommended for all patients who remain symptomatic despite such treatment if their ejection fraction is ≤35 per cent (subject to caution when renal function is impaired or serum potassium is >5.0mmol/L). The new sacubitril/valsartan combination (Entresto) is recommended as a replacement for an ACE inhibitor (or angiotensin II-receptor antagonist) to further reduce the risk of heart failure hospitalisation and death in ambulatory patients who remain symptomatic despite optimal first-line treatment – similar to NICE criteria. Recommendations for using ivabradine are also similar but not identical to NICE guidance.

Other options for which there is less clear evidence are hydralazine plus isosorbide dinitrate, digoxin and omega-3 polyunsaturated fatty acids. Statins (unless prescribed for another indication), anticoagulants, antiplatelet agents and aliskiren are not recommended.

The guideline goes on to provide further detailed advice on the management of heart failure with preserved ejection fraction and in the presence of arrhythmias and other co-morbidities, little of which has been updated.

A new approach to the management of acute heart failure recommends early initiation of pharmacological and nonpharmacological treatments in parallel with investigations. This highly detailed section is usefully supplemented by a treatment algorithm categorising patients firstly by the presence of congestion then by whether peripheral perfusion is adequate. The long list of recommendations – which includes mechanical ventilatory support and heart transplantation – concludes with a valuable reminder that the goals of treatment change as the patient moves between the intensive care setting into pre-discharge planning and long-term management.

The final section covers the organisation of care, multidisciplinary management, follow-up and monitoring, the management of frail elderly people and palliative care. Given the variety of health systems and cultures in the countries that might consider these guidelines, these recommendations are surprisingly specific.

To do and not to do
One particularly useful part of NICE’s guidance is its ‘do not do’ recommendations – they remove any doubt that an intervention might be worth trying despite a lack of evidence. The ESC offers something similar with lists of ‘To do and not to do messages’ in both guidelines. There are relatively few interventions that are “not recommended” – five vs 23 recommendations for CVD prevention and eight vs 25 recommendations for heart failure – and most of the recommended interventions are supported by high-quality evidence.

Summary
These ESC guidelines are comprehensive, highly detailed and very specific in many of their recommendations. They are an authoritative consensus on state-of-the-art evidence-based practice that is largely consistent with UK guidance while offering a wider picture. As such, they provide a valuable reference source but the level of detail and the sheer volume of information suggest they are not intended for the busy clinician. (Those who believe NICE guidelines are over-detailed are in for a shock.) The ESC website will in due course offer pocket versions of the guidelines, which are likely to be more usable, especially if they are presented as smaller volumes with greater focus.

References

Declaration of interests
None to declare.

Steve Chaplin is a pharmacist who specialises in writing on therapeutics