Appendix D – Practical notes

Background:
The course of heart failure patients is characterised by periods of clinical deterioration and potential need for changes to pharmacological therapy to be made. It is essential to maintain patients on therapy proven to reduce the risks of hospitalisation and improve the chances of survival. The adherence to this general advice is made difficult by practitioners’ concerns about side effects of therapy. In particular, many clinicians are concerned about renal impairment and reduced blood pressure in patients with heart failure.

The 2003 guideline included tables of practical recommendations that were based on the publication by McMurray {McMurray, 2001 1466 /id}). These covered aspects of clinical management that were not included in the evidence reviewed but which the GDG considered important.

In updating the guideline the GDG reviewed these recommendations and agreed that they were helpful to all practitioners caring for patients with heart failure, and would enable patients and practitioners avoid the frequent scenario where essential medications for heart failure are inappropriately discontinued. Where appropriate, the GDG adopted the advice from Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008).

These practical notes were written by the Guideline Development Group for publication in August 2010. They will not be revised before the guideline is considered for review in 2013. For all current NICE guidance, see www.nice.org.uk

General advice:
For optimal prognostic and symptomatic benefit doses of ACEI and β blocker should be up-titrated to the maximum tolerated. This may require repeated or prolonged supervision in some patients.

The dose of diuretic should be the minimum necessary to control oedema.

Communication with patients:
Identify a clinician from whom patients may seek advice regarding heart failure.

Explain the purpose of the medication prescribed and the importance of up-titration to optimal dose.

Explain the need for regular monitoring and at times alteration of medication.

Explain that improvement with ACEI or β blockers may take time to accrue.

Explain that minor worsening of symptoms may occur when β blockers are being initiated.

Encourage individuals to monitor their weight and to report any change
**Renal function:**

Monitor in all patients routinely. Check the renal function before the initiation of ACEI/ARB, and monitor the urea, creatinine, eGFR and electrolytes following each dose increment, and then at regular intervals every three months.

Measure serum urea, creatinine and electrolytes at initiation of an ACE inhibitor/ARB and after each dose increment.

Monitor more frequently patients taking combined loop and thiazide diuretic therapy, and in those taking aldosterone antagonists.

In people with CKD, measure serum potassium concentrations and estimate the GFR before starting ACEI/ARB therapy. Repeat these measurements between 1 and 2 weeks after starting ACEI/ARB therapy and after each dose increase. (Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008). R48

ACEI/ARB therapy should not normally be started if the pre-treatment serum potassium concentration is significantly above the normal reference range (typically >5.0 mmol/l). (Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008). R49.

Stop ACEI/ARB therapy if the serum potassium concentration rises to above 6.0 mmol/l and other drugs known to promote hyperkalaemia have been discontinued. (Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008). R52

Following the introduction or dose increase of ACEI/ARB, do not modify the dose if either the GFR decrease from pre-treatment baseline is <25% or the plasma creatinine increase from baseline is <30%. (Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008). R53

If there is a fall in eGFR or rise in plasma creatinine after starting or increasing the dose of ACEI/ARB, but it is less than 25% (eGFR) or 30% (serum creatinine) of baseline, the test should be repeated in a further 1–2 weeks. Do not modify the ACE/ARB dose if the change in eGFR <25% or change in plasma creatinine is <30%. (Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008). R54.

If the eGFR change is ≥25% or change in plasma creatinine is ≥30%:

1. investigate other causes of a deterioration in renal function such as volume depletion or concurrent medication (e.g. non-steroidal anti-inflammatory drugs (NSAIDS)
2. if no other cause for the deterioration in renal function is found, stop the ACEI/ARB therapy or reduce the dose to a previously tolerated lower dose. (Chronic Kidney Disease: Early identification and management of chronic kidney disease in adults in primary and secondary care. NICE clinical guideline 73 (2008). R55.

Before starting aldosterone antagonists, measure urea, creatinine, eGFR and electrolytes.
In patients taking aldosterone antagonists, measure urea, creatinine, eGFR and electrolytes at 1 week, and at 1, 2, 3, and 6 months and 6 monthly thereafter.

Halve the aldosterone antagonist dose if the potassium rose to 5-5.9 mmol/l.

Stop the aldosterone antagonist if the potassium rises above 6 mmol/l or the creatinine above 220 µmol/l.

**Blood pressure:**
Monitor in all patients routinely.

If blood pressure is low, first consider discontinuing nitrates, calcium channel blockers and other vasodilators.

If blood pressure is low, reduce diuretics in patients who do not have signs of congestion.

In asymptomatic hypotension do not alter dose of ACEI or β blockers.

Where at all possible maintain treatment with both ACEI and BB, at reduced dose if necessary.

**Increasing congestion/fatigue:**
If temporary deterioration occurs during the initiation or up-titration of β blockers diuretic dose may need to be briefly increased.

If congestion occurs increase diuretics and consider reducing dose of β blocker (but not discontinuing).

Where there is extreme fatigue (or bradycardia < 50bpm) consider reducing the dose of β blocker.

Seek specialist advice if serious deterioration (fatigue, oedema, weight gain and dyspnoea) does not improve

**Consider specialist review (see above):**
Where fluid retention is resistant.

When commencing ACEI in patients taking large doses of diuretics.

Where renal function continues to deteriorate or deteriorated rapidly.

Where there are concerns about low blood pressure.

Where fatigue, oedema, weight gain and dyspnoea do not rapidly improve.