Implementing joint treatment guidelines to improve prescribing in general practice
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Summary

Improving the quality of health care has been the focus of attention over the last decades. One of the means to improve treatment quality involves the development and dissemination of clinical guidelines. For the treatment of chronic diseases, agreement and harmonization between primary and secondary care about diagnosis and optimal treatment is very important.

This thesis focuses on the improvement of two chronic diseases, chronic heart failure (CHF) and hypertension in diabetes mellitus type 2, by implementing new joint guidelines developed by committees of specialists, general practitioners (GPs) and pharmacists in the region of Groningen. An implementation program aimed at improving the quality of prescribing is the main focus of this thesis.

Three themes for implementing treatment guidelines will be presented in this thesis. Firstly, physicians’ attitudes and barriers towards guidelines, and in particular towards the new joint guidelines are explored. Insight into those factors is essential for developing the best fitting implementation strategy. The second theme concerns the various determinants influencing the quality of prescribing. The third theme focuses on the evaluation of the implementation program, and measures the effect of this program on prescribing for these two chronic diseases.

In Chapter 1 we discuss three ingredients for an effective implementation of guidelines. Firstly, several guidelines’ characteristics and its development process are important for acceptance of guidelines. Acceptance of guidelines, however, does not automatically mean that guidelines will be followed. Several barriers may hinder the behavioral change needed to actually perform according to guideline recommendations in daily practice. Therefore, the second ingredient for successful implementation consists of insight into barriers which hinder change. These barriers can be found on different levels of the health care system: on the level of the organization, on the level of the individual physician, and on the level of the patient. Therefore, a combination of different implementation strategies is often needed for an effective implementation of guidelines. These different implementation strategies, such as regulatory strategies, financial strategies, patient related strategies, organizational strategies and professional oriented strategies are the third ingredient. Most research has been conducted with professional oriented strategies with mixed results. Interactive strategies, in which physicians are actively involved in the teaching process, seem promising. In addition, feedback and in particular individual feedback on prescribing, has been effective in implementing guidelines.
In the last part of the first chapter the implementation program developed for implementing new joint treatment guidelines is described. The effect of this program is evaluated in this thesis. This program is intended for self-supporting use by peer review groups. Peer review groups are small groups consisting of GPs and community pharmacists in a city or region, who regularly meet to discuss pharmacotherapy. The main part of the program focuses on the discussion with colleagues of the treatment of GPs own patients compared to guideline recommendations. The emphasis lies on receiving feedback on prescribing in comparison to the guideline recommendations, and discussing with colleagues possible barriers and solutions for improving treatment. Furthermore, GPs own prescribing behavior can be compared with that of colleagues, which can be an extra motivation for change. Two programs for implementing joint guidelines have been made with the same structure but with different topics. One program was developed to improve treatment of chronic heart failure, and the other program was developed to improve treatment of hypertension in diabetes mellitus type 2 patients.

Chapter 1 ends with the aims and research questions of this thesis. The first aim is to investigate the specialists’ and GPs’ attitudes and views on joint treatment guidelines. Next, the influence of these attitudes on actual prescribing will be investigated in general practice and organizational, physician related, and patient related factors influencing the quality of prescribing are identified. The most important research question is whether the implementation program has an effect on prescribing and which factors contribute to the success or failure of the program.

Chapter 2 describes the results of a focus group study on specialists’ views regarding the newly developed joint treatment guidelines. Most studies have investigated barriers for using treatment guidelines expressed by GPs. The aim of this study is to explore the factors that hinder or facilitate the use of joint guidelines as reported by specialists. Seven focus group studies have been held with 27 specialists in three different hospitals. The guidelines being discussed included the treatment of hypertension, the treatment of heart failure, and the treatment of gastric diseases. Only specialists concerned with these specialties were invited to the meetings. The specialists expressed a rather negative attitude towards the content of guidelines, in particular they expressed their fear that guidelines are often too restrictive. An important precondition mentioned was the involvement of specialists in developing guidelines. The specialist did not need guidelines for themselves. The feeling of having expertise on a specific subject appeared to be an important barrier for accepting recommendations of guidelines. However, they were willing to use guidelines outside their own expertise. Some specialists indicated that
certain patients can or will not be treated with standard therapy. The initiative to develop joint treatment guidelines was seen as a positive development, although specialists saw guidelines mainly as a useful tool for GPs. An organizational barrier mentioned was fear of losing industry-sponsored research and conferences. Based on these results, several recommendations are given regarding implementation of joint guidelines at the end of this chapter. Inclusion of more than one drug per drug group and regular updates of the guideline can remove some of the concerns expressed by the specialists. Feedback on current treatment of patients switching between primary and secondary care can show specialists that current practice may not be optimal. Furthermore, specialists can be involved in the implementation of guidelines in primary care.

Chapter 3 continues with the views of both GPs and specialists, on specific joint treatment guidelines for chronic heart failure and hypertension in diabetes mellitus type 2 patients. A structured questionnaire was used to identify the willingness of both physicians to use joint treatment guidelines. A comparison was made between GPs and specialists to determine whether different implementation strategies are needed. Almost all specialists and GPs reported to use some kind of guideline. Specialists preferred international guidelines and local agreements, whereas GPs preferred to use national and regional guidelines. Both groups of physicians agreed that it is important to make joint treatment agreements. Regarding the content of the guideline, in particular specialists indicated that recommendations should have been given on drug group level and they considered the guideline as too conservative. More than half of the specialists perceived no need to use guidelines themselves and agreed that medical practice was presented as too simplistic. Most physicians were positive about the development process of the guidelines and considered the developers as experts. Some physicians perceived a barrier regarding the apparent dominance of financial interest. Most GPs and specialists regarded the joint guidelines as a good source of advice. They believed that joint treatment guidelines could facilitate communication and improve harmonization between primary and secondary care. A clear barrier was fear that government and insurance companies could misuse the guideline. One third of the specialists expected to lose pharmaceutical industry support for conferences and research. GPs more than specialists saw a problem with patients not wanting to be treated according to the guideline. These results indicate that specialists hold a different willingness for implementing these guidelines than GPs. Specialists have no desire to change their behavior and do not perceive the guidelines as useful for themselves. However, the GPs seem more aware of a problem between primary and secondary care, and have a more positive attitude towards using joint treatment guidelines. Therefore, two different implementation strategies seem necessary for both groups of physicians.
Chapter 4 concerns the treatment of chronic heart failure in general practice. The aim of this study is to determine to what extent barriers perceived by GPs for prescribing angiotensin converting enzyme (ACE) inhibitors in chronic heart failure patients are related to actual prescribing of these drugs. Implementations programs are often aimed at perceived barriers. However, it is not clear to what extent these barriers are relevant for not achieving optimal management. Prescribing data were extracted from electronic medical records in general practice for a random sample of ten chronic heart failure patients. Barriers were collected by means of a semi-structured questionnaire. This questionnaire consisted of internal and external barriers towards prescribing an ACE inhibitor as identified from the literature and open-ended questions to identify self-reported barriers. For 43 GPs, the prescribing data as well as barriers could be identified. They prescribed an ACE inhibitor in an average dose of 13.5mg to 45% of their patients. No relationship could be found between the number of barriers perceived and GPs prescribing of ACE inhibitors. Also, no relationship appeared to exist between the barriers reported in the literature nor between the self-reported barriers and prescribing of an ACE inhibitor. Even the GPs who reported they did not think it is useful to prescribe an ACE inhibitor to very old patients, did not prescribe less ACE inhibitors to their patients over 85 years of age. These results point out that tailor-made implementation strategies focused on specific barriers reported by physicians will not be the most effective approach. Variation in prescribing does not seem to be fully explained by differences in perceived barriers. Other factors, on physician, practice, and patient level might play a role in explaining variation in prescribing.

In Chapter 5 we continue with the results of Chapter 4 and describe the influence of physician related, organizational, and patient related factors on the treatment of chronic heart failure. Although much is known about factors that have an influence on the management of chronic heart failure from the literature, few studies have been conducted to investigate these factors in relation to each other. Data from 735 randomly selected chronic heart failure patients were collected from electronic medical records of 95 GPs. Physician related and organizational factors were identified with a structured questionnaire. Multilevel analysis has been used to measure the influence of these factors simultaneously on the prescribing and dosing of ACE inhibitors. Dispensing GPs prescribed an ACE inhibitor more often. Patients who had visited a heart failure outpatient clinic had a higher chance of receiving an ACE inhibitor, after adjusting for age, sex and comorbidity. Patients who had been referred to a specialist were also more likely to receive an ACE inhibitor. After adjusting for all other factors, male patients and patients receiving a diuretic had a higher chance of
receiving an ACE inhibitor. Patients over 85 years were less likely to receive an ACE inhibitor. Regarding the dosage of ACE inhibitors, patients with concurrent hypertension were more likely to receive a higher dosage, and female patients were less likely to receive a high dosage of an ACE inhibitor. This study shows that in particular patient related factors have a great influence on the prescribing of ACE inhibitors in general practice. Therefore an implementation program aimed at management of chronic heart failure should focus on the treatment of specific patient populations. Furthermore, more specialized care as provided in heart failure outpatient clinics seems to improve treatment.

Chapter 6 describes the influence of physician related, organizational, and patient related factors on the treatment of hypertension in diabetes mellitus type 2 patients in a similar way as in Chapter 5. Data from 835 patients with diabetes mellitus type 2 were extracted in practices of 95 GPs. Multilevel analysis was performed to determine the influence of these factors on blood pressure registration, on the treatment of hypertension and on achieving the target level of 135/85mmHg. Overweight patients and patient with coexisting coronary artery disease were more likely to have a blood pressure registration. Adjusting for patient factors, patients who visited a diabetes facility or who were referred to a specialist had a higher chance of recent blood pressure measurements. Female GPs and GPs with less than 10 years of work experience were more likely to register blood pressures of their patients. Concerning the management of hypertension, only 20% of patients achieved the target level of 135/85mmHg, and many patients received just one or even no antihypertensive drug. Patients referred to a specialist and patients with concurrent hyperlipidemia were more likely to receive an ACE inhibitor, whilst patients who smoked were less likely to receive an ACE inhibitor. Elderly patients had a higher chance to receive another antihypertensive than an ACE inhibitor and were less likely to achieve the level of 135/85mmHg. This study shows that both patient related as well as physician related factors are associated with quality of treatment of hypertension in diabetes patients. Also, more specialized care of the diabetes facility enhances the registration of blood pressure measurements and specialist care improves both registration and treatment of blood pressure. However, their influence on blood pressure outcomes seems small. An implementation program should be targeted at more intensive treatments to achieve better blood pressure outcomes.

In Chapter 7 the evaluation of the implementation program for adherence to the joint treatment guidelines is discussed. The effect of two programs is assessed in a cluster-randomized study. One study arm received the program on chronic heart
failure and the other arm received the program on hypertension in diabetes mellitus type 2. The chronic heart failure group provided intervention patients for the CHF treatment and control patients for the treatment of hypertension in diabetes mellitus type 2. The hypertension group provided intervention patients for the treatment of hypertension in diabetes mellitus type 2 and control patients for the treatment of CHF. Multilevel analysis was conducted to assess simultaneously the influence of physician related and patient related factors, and the program itself. The outcome measures were based on the recommendations in the joint treatment guidelines and focussed on ACE inhibitor treatment for both programs. Furthermore, the second outcome measure for the treatment of CHF was the dosage of the ACE inhibitor, and for hypertension in diabetes patients the number of antihypertensives prescribed was investigated. The GPs present at the educational program also evaluated the program itself by reporting which parts of the program were perceived as useful or were not conducted.

No effect could be found of the implementation program on the treatment of CHF. Small changes were detected in the quality of treatment irrespective of the program. In both the intervention and control group the percentages of patients receiving an ACE inhibitor increased at follow-up. Patients who received a high dosage at baseline were more likely to receive a higher dosage at follow-up. Female GPs prescribed more ACE inhibitors than their male colleagues at follow-up.

No significant effect of the implementation program on the treatment of hypertension in diabetes mellitus type 2 could be found, although small changes in the quality of treatment could be observed. The percentages of patients receiving an ACE inhibitor increased, as well as the number of antihypertensives being prescribed after six months. Patients who had contact with their GP in the six months period had a higher chance of receiving an ACE inhibitor. Older patients were more likely to receive a higher number of antihypertensives.

GPs considered both programs as useful. However, in many cases the evaluation of their own patients had not been conducted. This was largely due to the fact that many GPs did not bring data from their own patients to the meeting and therefore did not receive any feedback. Moreover, sharing of experiences and discussing barriers with peers was not sufficient to overcome these barriers. Practical solutions were not presented nor did the program provide them with supportive material. At the end of the meeting, many GPs still perceived several barriers. GPs in the CHF groups perceived barriers regarding changing specialist initiated therapy and GPs in the hypertension group perceived barriers with patient compliance.

A combined strategy including education, feedback and mutual discussion of barriers did not have an effect on the treatment of two chronic diseases. The program might be effective on the treatment of new patients, as it is easier to start
new treatment than to change existing treatment. More active support is probably needed for improving the treatment of patients who are already treated.

Finally, in Chapter 8, the most important findings and conclusions are listed. Implications for implementing joint treatment guidelines for primary and secondary care are discussed.

The first studies showed that attitudes of specialists and GPs towards treatment guidelines were different. Specialists’ negative attitude towards using treatment guidelines for themselves and in particular, the expected negative consequences of the joint treatment guidelines, made it necessary to conduct separate implementation programs for GPs and specialists. Therefore, this thesis concentrated on the implementation of joint treatment guidelines in general practice.

The implementation program for primary care was based on several ingredients that have been effective in previous studies: active involvement of participants, feedback on actual prescribing, and discussion in small groups with peers. Nevertheless, this program did not have an effect on the treatment of CHF nor on the treatment of hypertension in diabetes mellitus type 2. Apparently, one meeting on complex treatment problems was not sufficient to actually change treatment. Behavioral theories stress the importance of repetition to change behavior especially when it concerns routine behavior. Only discussing possible problems and exchanging experiences is probably too noncommittal to tackle the barriers perceived. Many GPs expressed their concern with problems in shared care between primary and secondary care, even after the implementation program. An implementation program to improve the treatment of chronic diseases seems too limited without adequate attention for specialist involvement. Specific agreements should be made between GPs and specialists regarding the evaluation and adjustment of treatment of shared patients, and a joint treatment guideline can be a helpful tool for this. These agreements could be made in joint meetings or workshops. An alternative approach could be to start separate implementation programs for GPs and specialists simultaneously. These programs can take into account the differences in barriers experienced by the physicians.

It has also been shown that patient related factors had an important role in adhering to guidelines, besides physician and organizational factors. Some patients can be sufficiently managed with standard treatment, but other patients need more attention on individual level. Specialized care, such as provided in heart failure outpatient clinics can aid by identifying patients at risk and providing additional support. Finally, more structured use of electronic medical records can facilitate a better monitoring and improvement of quality of care.