

EVALUATION OF THE ROLE OF NURSE PRACTITIONERS IN MASTERPLAN

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SUMMARY

Background: Preserving kidney function and prevention of cardiovascular disease can only be achieved if patients are supported in self-managing their disease aimed at developing coping strategies.

Objectives: In MASTERPLAN, a clinical trial from 2005 -2010, patients with chronic kidney disease were randomised to receive nurse practitioner (NP) support or physician care alone. We evaluated the role of NP and patients in achieving lifestyle treatment goals. However the evaluation of lifestyle interventions resulted in disappointing findings.

Design: We conducted a mixed method study to explain the previous quantitative results in order to achieve a more complete description of the practice of reaching lifestyle goals

Participants: Ten NPs in nine participating hospitals of the MASTERPLAN study were interviewed and identified a hierarchy on what treatment goals received the most attention during MASTERPLAN, at baseline and after four years.

Results: A shift of attention in study goals occurred for various reasons e.g. progression of disease, too many goals, non-motivated patients, changed relationship between NP and patient. Different strategies were used to influence lifestyle change with varying degrees of success.

Conclusion: Lifestyle change is difficult to maintain during five years follow up. Besides a shift of attention in study goals, the relationship with the patient also changed over time.

KEY WORDS Cardiovascular • Chronic kidney disease • Patient involvement • Self-management/self-care • Treatment outcomes

BIO DATA

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INTRODUCTION

In patients with chronic kidney disease (CKD), cardiovascular disease (CVD) is already evident prior to dialysis initiation. Therefore at an early stage of kidney disease attention should be paid to the prevention of kidney function loss, metabolic complications, and cardiovascular disease (Wierdsma *et al.* 2011). In the past nephrology nurses were predominantly active in the pre-dialysis phase, but now are often leading outpatient clinics for CKD. The focus of care is on early detection of kidney damage and delaying the progression and the inherent complications of the disease. This requires dedicated attention to the monitoring of the disease, patient education and coordination of care (Neyhart *et al.* 2010). Patient education alone is not sufficient to address the psychological and behavioural difficulties inherent in chronic disease, including chronic kidney damage (Van der Bijl 2001). It is important that the patient can incorporate all aspects of the treatment into everyday life (Pool *et al.* 2003) and therefore the ability to

self-manage the disease is crucial. Little is known about self-management in the early stages of CKD or the role of health care providers to support self-management (Bonner *et al.* 2014).

To date, intervention studies [Cardiovascular risk Reduction with Early Anaemia Treatment by Epoetin beta (CREATE); The Correction of Hemoglobin and Outcomes in Renal Insufficiency (CHOIR); Action in Diabetes and Vascular Disease: Preterax and Diamicron MR Controlled Evaluation (ADVANCE)] have focused on just one target to reduce the risk of cardiovascular disease in patients with CKD and this has usually proved ineffective (Drueke *et al.* 2006; Singh *et al.* 2006; Patel *et al.* 2008). A possible explanation is that CKD is a multifactorial illness process in which both traditional and non-traditional cardiovascular risk factors (inflammation, metabolic bone disease, anaemia, and proteinuria) interact (van Zuilen *et al.* 2011). Therefore, based on this hypothesis, a multifactorial approach could be the best method to reduce cardiovascular morbidity and preserve kidney function in patients with CKD.

To evaluate this hypothesis a study was designed: Multifactorial Approach and Superior Treatment Efficacy in Renal Patients with the Aid of Nurse practitioners (MASTERPLAN) (van Zuilen *et al.* 2011). This randomised controlled clinical trial was performed in nine Dutch hospitals. Patients with CKD (estimated glomerular filtration rate (e-GFR) 20–70 ml/min) were randomised to receive nurse practitioner (NP) support (intervention group) or physician care alone (control group = usual care).

The intervention, NP support, consisted of: involving the patient in the treatment through information and education about CKD, coaching and support in the implementation of lifestyle issues, signaling, and discussing the achievement of targets for eight risk factors and treatment goals (and within lifestyle another four sub goals): blood pressure, LDL-cholesterol, hemoglobin, calcium/phosphate, proteinuria, diabetes, platelet aggregation, and lifestyle (stop smoking, weight reduction, more physical exercise, diet) (Table 1).

In the intervention group three different visits were performed: a regular visit (RV), a 6-month visit (HV), and a year visit (YV). RVs were conducted between the HV and YV. At each visit (standard consultation) the focus of attention was on lifestyle,

Risk factors	Treatment goals
Blood pressure without proteinuria	≤130/85 mm Hg or
Blood pressure with proteinuria	≤125/75 mm Hg
Proteinuria	<0.5 g/day
Lipids: fasting LDL	<2.6 mmol/l
Anaemia: Hb	>6.8 mmol/l
Fasting glucose	<7.0 mmol/l
Non fasting glucose	<9.0 mmol/l
Phosphate	≤1.8 mmol/l
PTH	<18 pmol/l
Healthy food	Guideline Dutch nutrition center
Protein	0.8–1.0 g/kg ideal body weight/day
Sodium	2000 mg/day
Fat	Decreased fat intake, in particular unsaturated fatty acids
Energy intake	30–35 kcal/kg ideal body weight/day
Overweight	Body mass index <25 kg/m ²
Physical activity	5×/week 30 minutes moderate intensive (Dutch physical activity guideline)
Medication use	Adherence to medication regime
Smoking	Quit smoking

Table 1: Risk factors and treatment goals.

laboratory results, and medication. At every MASTERPLAN-linked visit, measurements were made. At the RV, weight and blood pressure were measured, at the HV a 30 minute blood pressure measurement was taken with the aid of a dynamap¹ as was the case at the YV. At the HV and YV patients also completed questionnaires [SF12 (Ware *et al.* 1995); SF 36 (Ware *et al.* 1992)] and a nutritional questionnaire (Feunekes *et al.* 1993). In three of the nine participating centres a non-invasive measurement of arterial stiffness of the aorta was determined (carotid and femoral artery) using the pulse wave velocity (PWV).

The control group received questionnaires at the HV and YV by post and underwent the same measurements as the intervention group at the YV. No additional support regarding lifestyle, laboratory results or medication was given by the NP. They were referred to their nephrologist.

1. Validated blood pressure monitor set at a measurement every 2.5 minutes.

The results of MASTERPLAN showed surprisingly no significant differences concerning lifestyle between the intervention and control group (van Zuilen *et al.* 2011). Implementing multiple treatment goals and incorporating challenging lifestyle goals could be an explanation for this result. Furthermore, as renal function deteriorates other issues become more dominant (choice of renal replacement modality, increasing clinical symptoms of the disease, anxiety about the future) and existing coping mechanisms and motivation to continue with stringent lifestyle goals begins to waver. This shift in motivation may contribute to non-adherence and withdrawal of treatment despite the proven strategy to activate patients to manage their CKD, applied by NPs, aiming to improve adherence (Bodenheimer *et al.* 2002).

The primary aim of this study was to gain insight into treatment strategies for lifestyle goals used by NPs. Furthermore we wanted to explore factors which played a role in the mutual beliefs about the importance of treatment goals, determine which lifestyle goals are difficult to reach.

METHODS

To explain the results of the quantitative study (MASTERPLAN) a qualitative study was conducted. Qualitative studies are useful to explain and understand (unexpected) findings of a quantitative study (Bryman 2006). Additionally a quantitative measure was performed to rank priorities which individual NPs gave to the different treatment goals and lifestyle (behavioural) changes in these patients. The mixed method approach was chosen to achieve a more complete description of the practice of reaching lifestyle goals.

Based on the study aim, the following research questions were formulated

- Which lifestyle factors were given priority and what determined the NPs choice of an individual factor throughout the course of the MASTERPLAN study?
- What influences achieving treatment goals/lifestyle changes for CKD patients in the perception of NPs in outpatient clinic care, and why?

SAMPLE

A convenience sample with all 10 NPs working in the nine MASTERPLAN hospitals participated in the study. Three of the hospitals were university hospitals and none of the NPs refused

participation. Anonymity of the respondent was guaranteed and all material was handled anonymously. It was not necessary to submit an amendment to the original MASTERPLAN ethics committee and all steer members were in accordance. The nine females and one male who participated in the study had over 5 years of experience in nephrology care. Four months prior to MASTERPLAN all NPs received education on nutrition in kidney disease, self-management, exercise, smoking cessation (medical), and guidelines for all treatment goals. All NPs followed a course on motivational interviewing (MI), a client-centred, directive therapeutic approach to increase readiness to change eliciting one's own motivation to change (Hettinga *et al.* 2005). The form and content of the MASTERPLAN initiated visits to the out patient clinic was determined per centre by the individual NP and treating nephrologist. Twice a year all respondents underwent training on diverse care related subjects, and information about the progress of the study was given.

DATA COLLECTION

The respondents reported on which treatment goals were given the most attention, both at the start of MASTERPLAN in 2005 and also 4 years later. Data were collected in 2009, which meant that NPs had to recall information about the hierarchy of treatment goals at baseline (which was 4 years earlier).

Semi-structured interviews, approximately 45–60 minutes, were performed using an interview guideline (Table 2) and focused on the specific care provided. The interviews were conducted by a nephrologist fellow at the hospital where the respondent worked, in a room where they could not be disturbed. All interviews were recorded and transcribed verbatim. Due to technical inadequacy of equipment two of the 10 interviews were excluded from the final analyses.

DATA ANALYSIS

The quantitative data were analyzed using the Wilcoxon signed ranks test to show differences in ranking of the NPs focus of attention. Analyses was performed using SPSS 18.0.2 (IBM Corp., New York, USA).

Distribution of attention (protocol related) targets for treatment
Shift of attention during study period
Applied interventions/methods (e.g. Motivational Interviewing)
Role in care for lifestyle counselling

Table 2: Interview guideline.

The qualitative data, consisting of transcripts of eight interviews, were analyzed systematically according to the method of thematic analysis (Braun & Clarke 2006). The analysis was supported by the software program WinMax-Pro (Kuckartz 1998). The interviews were first read out in full to acquire an overall picture and were reread to grasp the details. Significant text sections were coded by three researchers. Text parts coded with the same code were pooled and a code tree was developed. Codes/coded texts were categorized by themes and the main themes and findings were presented and discussed with a fourth independent investigator. Short notes supported the analysis process.

Throughout the analysis process, themes from the preliminary analysis of the first interviews steered the analysis of the following interviews. The process led to theoretical saturation, within our data. The categories were fully developed in its dimensions and variations (Holloway 2008).

RIGOUR

Rigour was ensured by two types of triangulation. Triangulation represents different approaches to find answers on research questions with the purpose of increasing confidence in the generated findings (Bryman 2004). We used both data type triangulation (different types of data were used like interview transcripts and official statistics) and researcher triangulation (several researchers collaborated on data collection and analysis).

FINDINGS

The differences in ranking of the eight risk factors between baseline and 2009 are presented first, followed by the summaries of qualitative data. The latter consists of statements of respondents about behavioural strategies they used which aimed to promote health and/or preserve beneficial behaviour. Also the role of both the NP and the patient are analyzed. In the qualitative results, NPs are called respondents.

RANKING EIGHT RISK FACTORS

At the start of the MASTERPLAN study, lifestyle, blood pressure and albuminuria were the three most dominant topics and scored the highest ranking (ranking of eight risk factors on a scale of 1–8, where 1 means the most attention and 8 the least).

However in 2009, a change in the top three topics was observed compared to the ranking at baseline: lifestyle, ranked earlier as 1,

dropped to number 3. Blood pressure became the main focus of attention and albuminuria retained its dominant position. This shift in focus between regimen and blood pressure was observed in all nine centres. Table 3 shows the median ranking of these factors.

QUALITATIVE DATA

REASONS FOR THE SHIFT IN RANKING

Absence of Improvement

In the first years of the MASTERPLAN study lifestyle discussions had predominance over other factors because it was expected to be the easiest to achieve. But improvements on lifestyle, particularly maintaining changed behaviour, proved to be more difficult and this is an important reason for the repeated attention during the visits: quote respondent 7 (Table 4). Respondents indicated that the main reason for the reduced attention to lifestyle was lack of patient motivation: it appeared that some patients do not want to change and other patients who tried for years without any effect or success, are unable to change: quote respondent 4 (Table 4).

Lack of Motivation to Change

Over time, respondents realized that it was not possible to achieve all goals/targets, because patients were not motivated or patients' focus changed, due to altered circumstances: quote respondent 3 and respondent 8 (Table 4).

Estimated (in) Ability of the Patient

All respondents recognized patient characteristics which played a crucial role in patient's ability to adapt and maintain lifestyle

Factor	Baseline median	June 2009 median	P-value ^a
Blood pressure (IQR)	2 (1–2)	1 (1–2)	0.083
Lifestyle (IQR)	1 (1–2)	3 (2–6)	0.018
Albuminuria (IQR)	3 (3–6)	3 (2–5)	0.157
Diabetes mellitus (IQR)	4 (4–6)	4 (3–7)	0.915
Calcium-phosphate (IQR)	5 (4–6)	4 (3–7)	0.492
Dyslipidemia (IQR)	6 (4–6)	5 (4–6)	0.666
Anaemia (IQR)	5 (4–7)	6 (4–6)	0.786
Antiplatelet drugs (IQR)	8 (7–8)	8 (8–8)	0.109

Table 3: Ranking risk factors which received most attention by NPs, at baseline (2005) versus June 2009 (1 = most attention to 8 = less attention).

IQR: interquartile range. ^aWilcoxon signed ranks test: Asymp. Sig. p < 0.05 (2-tailed).

Lack of improvement	<p>Resp. 7: "You have to keep up constantly, because people can relapse into the same habit. Actually every time you have to make lifestyle subject of discussion."</p> <p>Resp. 4: "Yeah and then what strikes me again is that some things are coming back again and again. Sometimes I think it's like I've never discussed this before." And: "I mean, if I offered to quit smoking already three times or whatever. Then I make an agreement with the patient that I will not discuss this subject again. At one point a limit is reached. And that applies also for weight loss. At the beginning you start with setting a weight target, realistic to achieve. When after two years the target is not reached, I give up. So then the intervention on weight loss becomes less important."</p>
Low motivation to change	<p>Resp. 3: "Gradually I realized that it was impossible to achieve set goals. The patient also decides how to continue. You can give the best possible information, based on that the patient must make his/her choices. If someone chooses not to reduce weight or not want to quit smoking, then I'm done with it. I will only ask about it in the context of the study. The patient knows that too."</p> <p>Resp. 8: "You discuss the blood results and how patients feel because for some person's health is failing rapidly and changes in calcium phosphate metabolism arise. Patients have to deal with anaemia, more protein excretion and the blood pressure can be too high again, so maybe the emphasis is now more on discussing the results and adjusting medication."</p>
Estimated (in) ability of the patient	<p>Resp. 7: "Well there is simply a group of patients who fail to understand the need to change. If you explain something it goes in one ear and out the other. Perhaps it is due to lack of insight into the consequences of the behaviour or lower IQ, or it just does not work."</p> <p>Resp. 8: "You think enthusiastically that it will succeed. But it's just very persistent. There is simply a whole psychology behind it: is someone not at ease with oneself? How much support has a patient at home? Has someone a lot of problems? If so, then it all just does not work."</p>
Increased knowledge of the respondents	<p>Resp. 2: "Well it is different, in the beginning; of course I did not have as much knowledge. And now I know more. I find I have more baggage."</p> <p>Resp. 4: "I have also grown in the whole process, and also you have more background knowledge which makes you able to manage things better. At start this wasn't the case."</p>

Table 4: Quotes from NPs to illustrate a shift in ranking of important topics.

Resp.: Respondent.

goals. Characteristics are "nonverbal skills," that is, having no idea how to cope with problems, impaired cognition, and not seeing oneself as owner of the problem. Some patients appeared to have inadequate cognitive and verbal skills, and find it difficult to cope with certain problems. Information and advice can be difficult to process. These patients do not appear to have a lack of motivation: quote respondent 7 (Table 4) but fail to understand the consequences of certain behaviours. On the other hand there is also a very motivated patient group, aiming continually to "increase their knowledge"; these patients are verbally and cognitively adept: quote respondent 8 (Table 4).

Respondents Improved Medical Knowledge

Improved medical knowledge through the ongoing MASTERPLAN education program about, for example, calcium and phosphate metabolism, anaemia, and albuminuria also caused a shift in ranking of the risk factors; laboratory results became more important during the course of the study (adherence to guidelines). Because of the progression of CKD in some patients,

more attention was given to disruption of calcium and phosphate metabolism: quote respondents 2 and 4 (Table 4).

BELIEF IN THE EFFECT OF INTERVENING TO PREVENT RENAL DECLINE

Most respondents firmly believed that patients who received intensive coaching in tackling progression factors, maintain kidney function longer and therefore dialysis can be delayed. Most respondents are convinced that patients who did not receive intensive coaching, progressed much earlier to the pre-dialysis phase: quote respondent 8 (Table 5).

NECESSITY OF ATTENTION FOR BLOOD PRESSURE

At each visit, NPs measured blood pressure and discussed with the patient the beneficial effects of normal blood pressure in preserving renal function. In addition the correct use of antihypertensive medication was also discussed. Respondents gave lifestyle priority of place because of its impact on blood pressure (e.g., salt reduction): quote respondents 1 and 5 (Table 5).

Belief in the effect of intervening to prevent renal decline	Resp. 8: "You're much more in time with intervening. And these patients ultimately persevere longer. I am really convinced that they would have progressed earlier to dialysis."
Necessity of attention for blood pressure	Resp. 1: "Blood pressure is a vital part of something you measure during the visits and where you focus on." Resp. 5: "If you can keep blood pressure low, you can prevent renal decline longer. So we are always very focused on the blood pressure by adjusting medication. This is perhaps the easiest thing to do."

Table 5: Quotes from NPs to illustrate attention on renal decline and blood pressure.

Resp.: respondent.

LIFESTYLE ITEMS

Weight Reduction and (lack) of Physical Activity

Respondents recognized that for most patients, losing weight was almost impossible to achieve. Quitting smoking was given priority above weight loss. All respondents recognized the importance of weight loss in the prevention of insulin resistance and diabetes. Weight reduction achieved through exercise is often a slow process. Respondents observed many patients to be passive and unable to maintain the goals over a longer period of time. Most respondents became themselves dispirited by this phenomenon (resume quotes respondents: see Table 6).

One respondent observed a lack of physical activity due to financial limitations. For patients who never participated in any form of sport or physical activity previously, it was reported by all respondents, as almost impossible to start or maintain an activity.

Smoking Cessation

Respondents considered the goal to stop smoking as one of the most difficult interventions. Smoking is described by respondents as a persistent addiction, unlike other lifestyle issues:

quote respondent 8 (Table 6). All respondents underpin the negative effect of smoking, and agreed that by stopping the most health benefits could be gained. However, if the patient is not motivated to quit smoking, the respondent could only inform the patient about the risk of smoking, and could take no further action. Clearly it is a patient's own choice, but patient awareness of their problem is paramount in achieving success. Once one is aware of the problem, then barriers to success can be analyzed and the patient can set his own goals and can be coached by a NP.

Incorporating Dietary Advice

Salt reduction was seen as the most important dietary rule. However, respondents concluded that giving blood pressure lowering medication was much easier than limiting salt consumption (resume quotes respondents and quote respondent 5: see Table 6).

In the course of time respondents reported shifting priority from salt reduction to reduced phosphate and protein intake. This was mainly due to decline in renal function and an increase in metabolic complications. Most respondents also discussed the limitation of fat in relation to cholesterol and the amount of calories (and weight loss).

Weight reduction and lack of physical activity	"Yes, weight reduction. I still don't know what to do about it. I think it's a very difficult intervention, because it actually comes back every time and people find it also a difficult task." "Those people, who actually cannot lose weight, are permanently overweight. Yeah, then I start talking about it again." "I think exercise and diet are the priority topics for me, because weight loss is a very difficult thing, very difficult." "Weight reduction is simply very difficult for many people, as. Being consistently physical active." "I cannot manage people with a huge overweight to lose weight. I just cannot." Resp. 5: "Regarding salt, I point out that ready-to-eat meals are absolutely forbidden. That's number one."
Quit smoking	Resp. 8: "Smoking is a disaster, a heavy addiction. I underestimated that."
Adjust food habits	"Salt restriction remains difficult." "I think is the hardest dietary regimen." "You can affect your blood pressure if you do not eat much salt."

Table 6: Quotes from NPs to illustrate attention on lifestyle items.

Resp.: Respondent.

LIFESTYLE CHANGE ENHANCING STRATEGIES

Building a Relationship with the Patient

The NPs invested in building a trusting relationship with the patient, by patients discussing their feelings and problems. The NPs strived to be easily accessible for their patients. Communicating with patients in an open manner, allowing patients to talk about their life and illness experience, showing empathy, and taking patients seriously strengthens trust in a therapeutic relationship. Patients need to feel accepted for being who they

are (Vervoort 2008). The psychosocial context of the visits was crucial. A number of respondents noticed that changing lifestyle for single people is more difficult. Lack of support from a partner can influence the motivation to change behaviour. Patients feel free to discuss problems with NPs because they are approachable, non-judgemental, and have built a trusting relationship over many years. Some respondents also mention that they have more time to discuss issues than physicians have: quote respondents 3 and 2 (Table 7). The approach toward patients also changed over time: quote respondents 2 and 7 (Table 7).

<p>Building a relationship with the patient</p>	<p>Resp. 3: <i>"The biggest change lies in the fact that having more contact with the patient, the contact becomes different and during the visits you talk about other things than you did at the beginning."</i></p> <p>Resp. 2: <i>"And I notice that I also paid more attention to the psychosocial aspects of people. They like to tell you how it is and what they go through."</i></p> <p>Resp. 2: <i>"Yes, the approach. That is changing. I now dare to tackle the issues in contrast to the beginning. Then I confront someone quite hard, because I think, well, it's possible with this patient. And he can deal with it. And I think in the beginning, I did not approach someone this way. I was more cautious. You get to know your people. Then, you know, you learn the approaches."</i></p> <p>Resp. 7: <i>"You know by now what patients you have and you might know better how to respond; use arguments to get something done, and what not to say/do."</i></p>
<p>Motivational interviewing(MI)</p>	<p>Resp. 8: <i>"I Especially use MI to discuss intensive lifestyle issues, so with all overweight people and those having a lack of physical activity."</i></p> <p>Resp. 7: <i>"I try to examine the extent to which a person himself has that motivation."</i></p> <p>Resp. 6: <i>"In the beginning you were more aware of it and now perhaps you are more trying to do as you learned it. It felt like role-playing. Now it is easier I think. It comes from within you."</i></p> <p>Resp.1: <i>"Discuss together with the patient what's to be done. Preferably patients themselves come up with solutions. If they don't then discuss your ideas. Knowledge and understanding are anyway rather important to be able to make choices."</i></p>
<p>Patient centred care and autonomy</p>	<p>Resp. 3: <i>"The patient makes choices that most closely match someone's ability. But often someone is dependent on others. Making decisions together. Not 'have to', but ask what the patient wants and what fits in someone's (im) possibilities."</i></p> <p>Resp. 2: <i>"It is important to maintain communication with the patient even if the patient for example has not taken his prescribed medication or chooses not to change behaviour. Sometimes, after a while you might reach a change anyway."</i></p> <p>Resp. 2: <i>"I tell my patients: 'you're not doing it for me. You do it for yourself. I can bring up ideas, but you decide what you want to do with it. It's important for yourself what choice you make.'"</i></p> <p>Resp. 2: <i>"Patient awareness and accountability. That is the main thing for me."</i></p>
<p>Health education</p>	<p>Resume: <i>"By providing information the patient can make his own choices. Explaining resembles informing. You must explain things because the patient needs to know why he must do something or not. What happens if someone does or does not do it? Understandable language is a prerequisite."</i></p> <p>Resp. 3: <i>"Because I think that when the patient understands why he should take, for example, medication, only then can he be accountable for it."</i></p> <p>Resp. 6: <i>" Give advice, especially if people do not come up with ideas. How to tackle things the best way."</i></p> <p>Resp. 5: <i>"Explaining, that's absolutely my way. Ensure they understand and see the benefits. So I try to motivate and animate them, for example, choose good fats. I also have lists and booklets to support them." And: "Initially it was a lot of explaining and recommending websites and handing out leaflets. And now it's more asking whether the patient still understands."</i></p>

Table 7: Quotes from NPs to illustrate lifestyle change enhancing strategies.

Resp.: Respondents.

Motivational Interviewing (MI)

MI is increasingly used in health care, particularly in patients with a chronic disease, such as CKD. Intensive MI training and coaching has proven to be particularly effective and results in a significant increase in MI skills in users. Workshops alone do not result in positive training effects (Martino 2011). Three of the most important aspects of MI are reflective listening, language change, and suppress the urge to respond to questions and provide early advice (Resnicow & McMaster 2012). For a few respondents, applying MI is “the most natural thing in the world” and it is always used, regardless of the situation or person. Others find it more difficult; to them it is still not a habit. It is most commonly used in lifestyle issues such as smoking, lack of exercise and obesity: quote respondents 8, 7, 6, and 1 (Table 7).

Patient-Centred Care and Autonomy

Patient-centred “a fundamental component of practicing integrative medicine. Its hallmark is to customize treatment recommendations and decision making in response to patients’ preferences and beliefs” (Maizes et al. 2009). Understanding the course of the disease is paramount in predicting and guiding care and decision-making in patients with kidney disease. An individual patient’s experience of illness can be helpful in guiding discussions about prognosis and treatment, and in supporting a patient-centred approach of care (Schell & O’Hare 2013): quote respondents 3 and 2 (Table 7).

The values associated with autonomy (independence, ability to make decisions, being responsible for one’s own life) ensure that health care workers do not patronise patients and takeover responsibility, without giving the patient the opportunity to cope with the problem oneself (Delmar et al. 2011). Within MASTERPLAN, a shift has been seen from nurse-centred care to patient-centred care. The patient decides which goals he wants to achieve: quotes respondent 2 (Table 7). It was found that a patient’s age also plays a role in the decision to achieve certain goals: some elderly patients were more focused on quality of life rather than target achievement.

Health Education

Health education is a strategy used to reduce morbidity and mortality and to enhance well-being by influencing lifestyle choices. The focus is on health promotion and disease prevention. It highlights motivation, behaviour, values, and beliefs rather than information delivery only. It is important to

ascertain, prior to giving information, whether patients wish to receive information and to assess patients’ knowledge by asking open questions. Information can thus be tailored to suit each individual patient (Vervoort 2008). Health care workers are (presumed) experts who ensure that patients are well informed about the facts of their illness, but should also examine their own values and standards on health (Bulechek & McCloskey 1999).

Most of the information was given in the first year of MASTERPLAN (Table 7). Taking responsibility for one’s illness and incorporating a new lifestyle into daily living is only possible if there is a basic understanding of the different aspects of one’s illness: quote respondents 3, 6, and 5 (Table 7).

DISCUSSION

The combination of a quantitative and qualitative approach yielded useful data about why, contrary to expectation, disappointing results on lifestyle changes were observed during MASTERPLAN. Results of the MASTERPLAN study showed an improvement in medication-related goals and thus intensified drug use, but no changes on lifestyle were observed (Van Zuilen et al. 2012).

The reasons for this appear to be: firstly, lack of patient motivation to change lifestyle, secondly, realization by NPs that it was impossible to tackle and achieve multiple goals at once and lastly the focus shifted in time to dealing with progression of CKD and the inherent complications of the disease. However some studies have shown improvements in the field of lifestyle (Gaede et al. 2003, 2008). Respondents in our study found that lifestyle changes are tough for many patients due to the risk of relapse into old habits. Respondents sometimes had to learn to accept that a patient would or could not change.

Studies with only one goal achieve better results in terms of lifestyle (Ter Bogt et al. 2009; Bredie et al. 2011) than studies with multiple goals (Koelewijn-van Loon et al. 2009, 2010). A recent study in renal transplant patients shows that multiple goals were achieved, but it was a single centre study with a small sample size (Bissonnette et al. 2013). However it has been demonstrated in our study that the additional care by NPs in MASTERPLAN slowed the decline of renal function and improved renal outcome in patients with CKD (Peeters et al. 2014).

Mooren (2012) concluded that the individual care given by the NPs in MASTERPLAN is difficult to compare across all NPs, because many interventions are designed in accordance with one's own views. There is a discrepancy between the importance of dietary salt reduction and the actual salt intake of the patient. It is seen as a very important lifestyle change, but the average use of salt lies above the norm. The influence of NPs interventions on salt reduction cannot be considered as being ineffective (Mooren 2012). Consistently applying the intervention with respect to salt, seems to have been influenced by the NPs behaviour, which could also have affected other interventions in MASTERPLAN. The need to repeat topics previously discussed is an indicator of patient motivation and ability to change, but also of NP motivation to continue to support goals. Possibly the duration of the study and the numerous goals had a negative effect on both patient motivation to change and on NPs ability to maintain focus and continually encourage change which was however not occurring. Furthermore age can affect willingness to change lifestyle behaviours and the individual patient educational level could also affect motivation (Ampt *et al.* 2009).

The use of MI is applicable to all the lifestyle interventions. Its use in the MASTERPLAN study depended on the ability of the respondents to incorporate it into daily practice and although all respondents were trained, not all felt equally qualified to apply it. Facilitating MI training for health care workers, without a counselling background and who may be accustomed to a more didactic approach to patients, may need more intensive support in the use of MI in daily practice than experienced counsellors (Moore *et al.* 2012). However, there must also be adequate time for MI in the consultation at the outpatient clinic. With proper training, MI strategies can easily be incorporated into the counselling of patients with Type 2 diabetes and can lead to lifestyle changes in medication adherence, increased physical activity and a healthier diet (DiLillo and West 2011). Possibly repetition of MI training would have contributed to more confidence of the respondents in their skills and eventually have led to the achievement of the lifestyle goals in the MASTERPLAN study.

Strategies that can elicit lifestyle changes have been used with varying success. This depended on the relationship between NP and patient. The balance between what the NP wants/thinks and the patient asks/can do, plays an important role. Leaving the responsibility to the patient, respecting patient autonomy, once

well informed, was an important statement by most respondents. Vervoort *et al.* (2010) observed similar statements by HIV-nurse consultants. Autonomy and responsibility, however, can put a lot of pressure on a patient and there is some doubt whether self-management is always in the best interest of the patient (Delmar *et al.* 2011). Sometimes patients are unable to cope with the responsibility and benefit by sharing the responsibility. Perhaps the burden of responsibility has undermined behavioural change and self-management in some patients, due to feelings of inadequacy and guilt.

It is clear that both the behaviour of the NPs as well as that of the patient changed as the study progressed: a shift in care from the perspective of the NPs, to a more individualized care, in which the patient is explicitly involved and is empowered to make his own choices. Tailored information to suit a patient's level of understanding can lead to improved patient illness knowledge whereby individual choices can be made.

LIMITATIONS OF THE STUDY

The following limitations should be considered. Firstly the design of the study was not ideal. In most hospitals only one NP carried out all visits for both the control and the intervention group. This may have caused bias. Also, the doctors knew which patients participated in the study and care for patients in the control group, were also influenced by the guidelines of that time. Secondly, because all patients were susceptible to progression and complications inherent to the disease, NPs were obliged to act when problems arose within the control group. Thirdly the study related tasks were time-consuming and this was at the expense of other activities and there was less time for the consultations. The NPs felt pressurized to meet study goals and felt unable to pursue all targets at the same time. Fourthly, data showed that there was no standard (evidence-based) method of applying interventions used for the intervention group. At the start of the MASTERPLAN study this was not taken into account. Therefore differences arose between the centres in the chosen intervention method and also to which goals priority of place was given.

IMPLICATIONS FOR PRACTICE

Slowing down the progression of CKD by timely treatment of risk factors such as blood pressure and proteinuria in conjunction with adjustments to lifestyle, is time consuming and warrants intensive coaching. However despite intensive guidance in the area of lifestyle, goals in the MASTERPLAN study were not

achieved. It is suggested the future studies should therefore focus primarily on interventions that promote behavioural change in patients with CKD and determine what these patients need to successfully manage their disease.

Tackling lifestyle goals can be difficult and therefore choices must be based on an individual's intrinsic motivation. Lifestyle should be discussed on a regular basis and information should be repeated. In this way, patients can be supported and coached, problems can be detected and together with the patient, strategies developed to enable successful incorporation of lifestyle goals into everyday life.

CONCLUSION

Lifestyle change is difficult to initiate and maintain for five years, as in the MASTERPLAN study. The evaluation of MASTERPLAN showed a clear shift of focus on goals and ranking of goals over time. Multiple goals, non-motivated patients, changed NP motivation, progression of CKD and therefore focus on other problems associated with renal dysfunction, all contributed to the disappointing results. The relationship with the patient changed over time, from nurse-centred care to patient-centred care. There was no strict separation of control and intervention

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group in terms of treatment and study activities. In this respect, the MASTERPLAN-study design was not ideal and may have led to less impact in terms of lifestyle goals.

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Conflict of Interest

No conflict of interest has been declared by the author(s).

Author contributions

SV: Participated in design and coordination, helped analysing the qualitative data, helped to draft manuscript, read and approved the final manuscript. AvZ: Principal Project Leader, read and approved the final manuscript. NB: Helped coding text sections in order to develop a code tree. Read and corrected the manuscript as native English speaker and approved the final manuscript. PG: Helped coding text sections in order to develop a code tree. Read and approved the final manuscript.

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