Improving cardiovascular risk assessment in primary care

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CHAPTER 3

Incidental findings in research: a focus group study about the perspective of the research participant

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Abstract

Purpose To explore the experiences and preferences of healthy research participants to whom an incidental finding was communicated.

Materials and methods Of the 2,580 participants of the Netherlands Epidemiology of Obesity (NEO) study who underwent MRI scanning of the abdomen, heart and/or brain, an incidental finding with presumed health importance was disclosed to 56 (2%) participants. These participants were invited to discuss their experiences regarding the communication of the finding by the NEO research team in a focus group discussion. Transcripts of the discussions were analysed using thematic content analysis with an open coding system.

Results Twenty-three persons participated in four discussions; 57% male; mean age 58 years; 74% findings were suspect for a malignancy. Overall, the participants were grateful for the disclosure of the incidental finding. They had assumed that any finding would be disclosed, and this was an important reason to participate in research. None regretted their informed consent to be notified about incidental findings. Disclosure of the finding had great impact on the lives of most participants. Difficulties with the transition from research participant to patient were frequently mentioned.

Conclusion This study provides information to improve the communication of incidental findings by 1. giving clear information about which findings will be disclosed and 2. demarcating the transition from research participant to patient, by making clear arrangements with medical specialists to guarantee careful follow-up of the finding.

Introduction

In research projects involving healthy volunteers, medical data is collected without clinical indication. The procedures have the potential to yield information that is outside the scope of the original research, but may be of potential health importance for the participant. The prevalence of such incidental findings varies greatly with the kind of tests performed in research projects, or with population characteristics of participants. In research projects using brain magnetic resonance imaging (MRI), for example, the overall prevalence of incidental findings is 2.7%(77) and in projects using whole-body MRI a prevalence of 32% has been reported(78).

Consensus exists that incidental findings of potential health importance have to be disclosed to the research participants in any case.(25) Researchers should describe the process of communication of incidental findings as part of their research protocol.(25) However, the communication of incidental findings raise many questions for the researchers, e.g. how to define the health importance of the findings, how to explain the risks and benefits of discovering incidental findings in the informed consent process, how to disclose such findings, and how to organize the medical follow-up of incidental findings. Because many persons participate in research each year(23), attention for the communication of incidental findings is needed.

Currently, there is no legal precedent concerning the communication of incidental findings. In the literature, existing recommendations regarding the communication of incidental findings are generally based on ethical, legal, scientific and clinical perspectives. A recent study observed that little is known about the perspectives of the research participants themselves who are confronted with incidental findings.(79) Therefore, the aim of this qualitative study was to explore the experiences and preferences of healthy research participants to whom an incidental finding detected on MRI was communicated. MRI was chosen as it is frequently used for research applications and it often generates incidental findings. With this exploration we aim to improve the communication of incidental findings in research.

Methods

Methodological approach

The medical ethics committee approved this study and all participants gave informed consent. We have used the COREQ checklist to guide the design of the study and reporting of the data.(80) In August 2013, four focus group discussions were conducted with participants of the Netherlands Epidemiology of Obesity (NEO) study, who had been confronted with an incidental finding detected on MRI of the abdomen, heart or brain, made for research purposes. The NEO study is a non-clinical prospective cohort study in healthy individuals.(52)

A qualitative research method was chosen to allow participants to articulate and discuss their own experiences and preferences regarding the communication of incidental findings. In line with the exploratory aim of our study, focus group discussions were carried out instead of individual interviews as this method allows for interaction between the participants, and thus elicit a multiplicity of views within a group context.(81) A qualitative study design is characterised by collection of non-numerical data. Every statement is equally important for in-depth understanding of the research topic, irrespective of how frequent it is stated.(82) Moreover, frequencies cannot be measured due to the group context where topics are not explicitly addressed by each participant.

Study population

Of the 2,580 participants of the NEO study who underwent MRI scanning of the abdomen, heart or brain, an incidental finding was disclosed to 56 (2%) participants. The process of communication of incidental findings in the NEO study is described in more detail in Table 1. In July 2013, these 56 participants were invited by a letter to participate in a focus group discussion. After two weeks a reminder was sent by e-mail to the non-responders. The participants who were willing to participate in a focus group discussion were divided over four focus group discussions according to their preferred date and time.

Interview guide

A topic list was used as interview guide to explore the experiences and preferences of participants to whom an incidental finding was communicated. The topic list was based on the process of the communication of incidental findings in the NEO study. The first section addressed participants' experiences of the informed consent of disclosure of incidental findings, the way of disclosure, and the follow-up after disclosure. Thereafter, the topic list focused on participation in research in general. The interview guide was piloted in two semi-structured interviews with two randomly selected participants who were confronted with an incidental finding. After the two semi-structured interviews, minor adjustments were made to the interview guide.

Focus group discussions

The focus group discussions were led by the first author (AWB), assisted by a second researcher (JWB). Each focus group discussion (5-7 participants per group) lasted approximately 75 minutes. The researchers made notes after each discussion. With the consent of participants, the focus group discussions were recorded and transcribed verbatim. Data saturation was reached after four focus group discussions.

Coding and analysis

The transcripts were independently read and analyzed by two researchers (AWB and YMD) using thematic content analysis with an open coding system.(82) The coding system was grounded in the data to generate a comprehensive understanding of the experiences and preferences of the participants.(83) Emerging themes were organized in an analytical framework for axial coding; this was discussed by three researchers (AWB, YMD and RR) until consensus was reached. New codes were added when considered necessary. No qualitative software was used in the analysis of the qualitative data. After coding, the data were sorted according to the themes. Quotations were selected to illustrate each theme.

Table 1 Communication of incidental findings in the Netherlands Epidemiology of Obesity (NEO) study

A random subset of 35% participants without contraindications were invited to undergo magnetic resonance imaging (MRI) of abdominal subcutaneous and visceral fat, and pulse wave velocity of the aorta (n = 2,580), in combination with either cardiac function (n = 1,207), or the brain (n = 1,212) according to standardized protocols. Contraindications were metallic devices, claustrophobia, and a body circumference > 1.70 m. All scans were obtained with an MR system operating at a field strength of 1.5 Tesla (*Philips Medical Systems, Best, Netherlands*). The MRI scan were made for research purposes to study, for example, fat depots, cardiac function and brain morphology, and therefore not performed in accordance with the procedure of a clinically MRI scan. As a result, the quality of the images of the MRI scan may be not good enough to detect all abnormalities. The NEO study was approved by the medical ethics committee and all participants gave informed consent.
Informed consent process
Participants were recruited via general practitioners (GPs), municipal registers and advertisements. Extensive study information was sent to those who were interested to participate, along with a questionnaire and invitation for the baseline visit. In the extensive information the communication of incidental findings on the MRI scan was indicated.
"In principle, you do not receive the result of the MRI scan. The images of the MRI scan will be interpreted by a radiologist. When unexpected abnormalities are found that are likely to have serious health consequences when left undiagnosed, we will contact you and your GP within four weeks after the MRI scan. However, when no unexpected abnormalities are identified, this will not completely exclude medical abnormalities, as the quality of the images of the MRI scan performed for the NEO study may be not as good as an MRI scan for medical diagnostics."

Table 1 Continued

At the baseline visit, informed consent was obtained by trained staff. The participants were asked whether they wished to be notified of incidental findings on the MRI scan that are likely to have serious health consequences when left undiagnosed. During the informed consent process and the baseline visit there were many opportunities to raise questions to the research staff.
Disclosure of incidental findings All MRI scans were interpreted by radiologists. In case of an incidental finding with potential health importance, the imaging report was sent to an independent internist-researcher. Thereafter, the incidental finding was verified and its importance determined by protocol. An expert was consulted about the incidental finding when needed. Incidental findings with a suspicion of a malignancy, aortic aneurysms, brain aneurysms, and subdural hematomas were defined as incidental findings that were likely to have serious health consequences when left undiagnosed. Those incidental findings were disclosed by the internist-researcher to the participant and/or the GP, accompanied by either an advice for further work-up in general practice or an appointment with a medical specialist. Incidental findings with a high suspicion of a malignancy were disclosed immediately (median time from MRI scan to disclosure 10 days). The priority of the appointment with a medical specialist was based on the severity of the incidental finding. Within two weeks after the baseline visit, all participants received a letter with the results of tests on blood pressure, serum cholesterol concentrations, fasting or non-fasting plasma glucose, renal function, lung function, and bone mineral density. The disclosure of incidental findings was a separate pathway and therefore not related to the disclosure of other test results. In general, these test results were disclosed earlier than the disclosure of incidental findings on the MRI.
Follow-up procedures The GP or medical specialist was responsible for medical follow-up of the incidental finding. In this country, every citizen is legally obliged to take out health insurance, covering common medical care. The data of the MRI scans was stored anonymously at the research center, and therefore not available in the medical record of the participant. The NEO study did not provide aftercare for the participants with an incidental finding.

Results

Of the 56 persons who were invited to participate in this qualitative study, 31 did not participate in the focus group discussion. Of these, 18 persons responded they could not participate due to illness (n=1), vacation (n=5), other obligations (n=1) or no reason was reported (n=11), 13 persons did not respond. After two semi-structured interviews, 23 persons (41%) confronted with an incidental finding participated in four focus group discussions. The participants seemed to have more often a suspicion of a malignancy than non-participants. The baseline characteristics of the participants and non-participants are shown in Table 2.

Table 2 Baseline characteristics of the participants and non-participants of the focus group discussions

Characteristics	Participants focus group discussions (n=23)	Non-participants focus group discussions (n=33)[a]
Mean (SD) age, years	58 (5)	55 (7)
Sex, men	13 (57%)	19 (58%)
Type incidental finding		
Suspect for a malignancy	17 (74%)	16 (49%)
Aortic aneurysm	4 (17%)	6 (18%)
Brain aneurysm	1 (4%)	0
Subdural hematoma	0	1 (3%)
Other	1 (4%)	10 (30%)
Median (IQR) time from MRI scan to disclosure, days	34 (18-87)	55 (34-92)

Values are numbers (percentage) unless stated otherwise

Abbreviations: IQR,interquartile range; MRI, magnetic resonance imaging

[a] Including two participants who took part in the semi-structured interviews to pilot the interview guide for the focus group discussions

The experiences and preferences of the participants were clustered around six overarching themes: reasons for participation in the original study, informed consent process, disclosure of the incidental finding, transition from research to medical care, medical follow-up of the incidental finding and impact of the incidental finding. A summary of the findings is presented in Table 3.

Reasons for participation in the original study

The disclosure of test results, including results of the MRI scan, was an important reason to participate in the NEO study. Either to receive confirmation of good health, or to detect disease at an early stage:

"I wanted to prove that I was healthy" (Participant 04)

Informed consent process

In general, the participants were satisfied with the information they received about the communication of incidental findings in the informed consent process, although many participants had assumed that all incidental findings would be disclosed, not just incidental findings with serious health consequences:

"Why did they not disclose my back disorder, my general practitioner was already informed" (Participant 18)

All participants of the NEO study who underwent MRI wished to be notified of incidental findings on the MRI scan. The risk of discovering an incidental finding was perceived as a benefit to participate in this study:

*"But why would you participate (*if you don't want to know the MRI outcome*)? Someone else (*could participate*) instead of you" (Participant 05)*

In one focus group discussion the differences with incidental findings in genetic research were discussed. The participants felt that disclosure of incidental findings in genetic research could be burdensome: for example in relation to getting insurances or for what it means for their family members. Therefore they may not wish to be notified of incidental findings in genetic research.

Disclosure of the incidental finding

The participants expected that incidental findings would be disclosed quickly after the MRI scan. Mainly at the beginning of the NEO study several participants experienced more than one month between the MRI scan and disclosure of the incidental finding, which was considered too long. The participants were satisfied by whom the incidental finding was disclosed, either by the researcher or the general practitioner (GP). Irrespective of the GP's role in the disclosure, they preferred the researcher to inform their GP. The participants preferred not to inform their GP themselves, as was the case for a few participants. Disclosure was by telephone or by letter, but neither were preferred. The disclosure of an incidental finding after other (negative) test results had been disclosed (e.g. laboratory test results, within two weeks after the baseline visit) was experienced as confusing, because an abnormal result of the MRI was not expected anymore. The participants perceived not receiving any abnormal results as proof of being completely healthy.

Transition from research to medical care

The most intensely discussed theme in the focus group discussion was the transition from research to medical care. From the perspective of the NEO research team the disclosure of

an incidental finding to a research participant clearly marked his or her transition to being a patient. However, for participants this was ambiguous: they did not clearly distinguish between participating in research and entering medical care. An important issue was the felt need to have a timely appointment with a medical specialist. This was discussed in terms of reciprocity: in return of their research participation, they expected that researchers would make an effort to organize quick follow-up of the incidental finding:

"You cooperated here (in the hospital)*, so then you think, hey, shouldn't I have a little bit of priority?" (Participant 08)*

During the follow-up of the incidental finding, they were surprised that not all GPs and medical specialist were familiar with the NEO study:

"Nobody knew about what NEO was, even though it (the study) *is conducted in the same building" (Participant 01)*

Moreover, they expected that all information about the incidental finding, including the MRI scan would be available to the GP and medical specialist, whereas the data of the MRI scans was stored anonymously, and therefore not available in the medical record of the participant. In addition, they expected that all members of the research team would be informed about the disclosure of an incidental finding, especially the contact person of the study. In practice information about the disclosure of an incidental finding was available to the contact person after consulting a database.

Medical follow-up of the incidental finding

The period between disclosure of the incidental finding and the follow-up of the incidental finding by a GP or medical specialist was a worrying and uncertain time for many participants:

"Normally, a month flies by quickly, but then a month is 31 days, and that is 31 times 24 hours" (Participant 01)

"The rock-solid confidence in one's body is momentarily gone" (Participant 03)

During the follow-up of the incidental finding, the participants expected their GP to mainly give support.

Aftercare by the NEO study team for participants with an incidental finding was not expected, though it would be much appreciated. They were pleased to participate in

the focus group discussions to share their experiences with other participants This was experienced as a form of aftercare.

Impact of the incidental finding

After disclosure of the incidental finding, the participants had reacted in different ways, such as by seeking information, denial, or anticipation of possible consequences. After medical follow-up, most participants had required (surgical) treatment. At the time of the focus group discussions, consequences of the incidental finding varied widely. Some participants did not experience any ongoing consequences. Others experienced physical consequences, such as functional status decline. Mental consequences were also mentioned as some participants were more alert for symptoms or had feelings of distress and anxiety:

> *"Of course there is a ticking time bomb somewhere."(Monitored but no primary tumour found at the moment) (Participant 09)*

All participants reported that they had been happy to participate in the NEO study, and grateful for the disclosure of an incidental finding. They emphasized the serendipity of participation, of being part of the subset who underwent an MRI scan, and of the discovery of an incidental finding:

> *"I don't win the lottery either" [diagnosis of cancer at an early stage] (Participant 04)*

Table 3 Overarching themes and findings expressed by participants confronted with an incidental finding

Theme	Findings
Reasons for participation in the original study	Disclosure of positive or negative test results and the risk of discovering an incidental finding were reasons for participation.
Informed consent process	Many participants assumed that all incidental findings were disclosed. All participants wished to be notified of incidental findings. This may be different for incidental findings in genetic research.
Disclosure of the incidental finding	More than one month between the MRI scan and disclosure of the incidental finding was considered too long. There was no clear preference for disclosure by telephone or by letter. Preference that the research team informs the participant's GP, instead of by the participants themselves. The two separate pathways of disclosure of the different test results were not clear. The disclosure of an incidental finding later than the disclosure of other test results (e.g. laboratory test results, within two weeks after the baseline visit) was experienced as confusing, because an abnormal result was not expected anymore. Participants perceived not receiving any abnormal results as being completely healthy.
Transition from research to medical care	Participants had difficulties with the transition from research participant to the patient role. In return of their participation, they expected rapid access to follow-up of the incidental finding. Participants expect that all research information about the incidental finding will be consigned to the GP or medical specialist. Participants expect that the whole research team was informed about the disclosure of incidental findings.
Medical follow-up of the incidental finding	Period between disclosure and the follow-up of the incidental finding by a GP or medical specialist was a worrying and uncertain time. The participants considered it the role of their GP to give support. Participants experienced the focus group discussions as aftercare.
Impact of the incidental finding	There was a wide variety in short-term and long-term consequences of the incidental finding. All participants were happy with participation and grateful for the disclosure of an incidental finding.

Abbreviations: GP, general practitioner; MRI, magnetic resonance imaging

Discussion

All participants in this study were grateful for the disclosure of an incidental finding. Disclosure of the incidental finding had great impact on the lives of most participants, which emphasizes the importance of guidance on how to manage incidental findings in research. The most intensely discussed theme in the focus group discussions with research participants was the transition of being a research participant to being a patient, including the need of quickly entering follow-up procedures, the expectation that all information about the incidental finding will be consigned to the GP or medical specialist, and the expectation that the whole research team will be informed about the disclosure of incidental findings. This is line with the finding that the disclosure of test results motivated participants to take part in the NEO study.

The participants in this study assumed that any clinical problem would be identified and disclosed. Although this was mentioned in the study information, they apparently did not realize that the MRI scan was not optimized for clinical diagnosis and that only incidental findings with serious health consequences would be disclosed. As a consequence the participants misinterpreted not receiving abnormal results as proof of being completely healthy. It is known that informed consent is frequently not understood by the participants.(84) Half of the participants in neuroimaging research expect all abnormalities to be detected despite being informed otherwise.(85) The most effective intervention to improve understanding is person-to-person interaction, as enhanced consent forms do not appear to result in better understanding.(84) When also other test results are communicated to the participants, participants need clear information about the different pathways of communicating the different results.

All participants in the NEO study wished to be notified of incidental findings. This is in accordance with other studies about incidental findings.(85) In our study, none of the participants confronted with an incidental finding regretted this choice. Some participants did state that genetic incidental findings are different because of the possible consequences for their family or insurance schemes.

According to our study, participants want to be informed about an incidental finding as soon as possible. At the beginning of the NEO study, the responsibilities of interpretation of the MRI scans and verification and disclosure of incidental findings were not assigned to a specific person, which has led to more time from MRI scan to disclosure. The NEO study team therefore revised the procedure on the communication of incidental findings, which decreased the median time from MRI scan to disclosure from 117 days to 41 days. In addition, the radiologists and the internist-researcher of the NEO study team experienced

that it was difficult to interpret the MRI scans without patient characteristics or context. As a consequence more incidental findings were verified and disclosed than originally anticipated in the research protocol, which resulted in a more time-consuming procedure. To be able to provide timely assessment of the test results, with identification of possible incidental findings, and prompt disclosure after identification researchers should make a detailed protocol on how to handle incidental findings before recruitment of participants.

The participants were satisfied by whom the incidental finding was disclosed, which was either by the responsible internist-researcher of the NEO study or their GP. Different opinions on who the best person would be to disclose incidental findings is also found in focus group discussions with participants from the general public.(86) The advantages of disclosure by the participants' GP are the pre-existing relationship between GPs and their patients. In a recent study primary care providers reported that patient's clinical context and personal traits affect how they communicated incidental findings.(87) Moreover, when the finding is not disclosed by a member of the research team, this will demarcate the transition from participating in research to entering medical care. Disadvantages are the violation of the participant's privacy, and the time the GP has to spend on communicating the incidental findings. When researchers decide to disclose the incidental findings to GPs, this way of disclosure has to be communicated in the informed consent process.(25)

A frequently mentioned topic was the need of rapid access to follow-up procedures, the expectation of which was discussed in terms of reciprocity. In the literature about the communication of incidental findings, there is an ethical and legal trend that researchers have duties toward research participants.(25) This includes timely disclosure of incidental findings to maximize benefits and minimize harms. Based on this trend, researchers should make arrangements with medical specialists before start of a research project to guarantee quick follow-up of the incidental finding. In reality this may be complicated, as in our healthcare system appointments with medical specialists are mainly based on triage, whereby the priority of care is based on the severity of the condition.

In our study, the participants did not clearly distinguish between participating in research and entering medical care. This is also been described in a previous study, where participants refer to researchers as doctors with medical knowledge.(88) To improve the transition from research participant to patient, several suggestions can be made on the basis of our findings. First, the medical specialists who may have to contribute in the follow-up of the incidental findings have to be informed before the start of the project, and during the research project for example by regular updates or when the follow-up of a specific participant is planned. Furthermore the test results, in this case the MRI scan, have to be promptly made available to the GP or the medical specialist in the follow-up

process. And last, the contact persons of the research team have to be updated on the disclosure of an incidental finding to a specific participant and, in general, instructed on how to handle questions about the incidental findings. Implementation of these suggestions takes time, though, they may be necessary to guarantee careful follow-up.

Researchers can consider organizing a meeting to provide peer-to-peer support for participants with an incidental finding. The participants in our study stated that this would be much appreciated. However, evidence about the effects of such intervention on wellbeing is lacking and should be investigated.

All participants were grateful for the disclosure of an incidental finding. This may be seen as a reason to support this policy. However, the disclosure of incidental findings is most likely an example of a system with lack of negative feedback. Previous research on cancer screening described that patients are positive about screening regardless of the outcome; persons with a negative screening result are grateful for reassurance and a positive result makes a person grateful for early detection.(89)

Previous studies mainly focused on the ethical, juridical and clinical perspectives.(25) With this study population we were able to explore the experiences and preferences from an insider's perspective.

Our study population consisted of twenty-three participants, a relatively small sample size compared with quantitative studies. In addition, the participants in our study seemed to have more often a suspicion of a malignancy than non-participants. As a consequence, our results may not be representative for other populations. However, representation of the total population is of less importance due to the exploratory aim of the research.(82)

The generalizability of our findings to other procedures may be limited due to a healthy research population and the specific characteristics of the communication of incidental findings in the NEO study. It is possible that experiences and preferences are different in genetic research, with the disclosure of a broader range of incidental findings, or in the course of clinical care or screening. More research is needed to explore these fields. However, we expect that the overarching themes are relevant to all types of procedures.

In conclusion, the findings of the focus group discussions support the need for guidance on how to communicate incidental findings in research. The perspective of the individual confronted with an incidental finding is a valuable addition to the current debate on incidental findings, where the perspective of research participants confronted with incidental findings was lacking. Before recruitment of the participants, researchers should design a

detailed protocol for the communication of incidental findings, including clear informed consent information, a protocol to guarantee timely disclosure and arrangements with medical specialists.