What could be the main levers to promote a timely diagnosis of neurocognitive disorders?

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Research

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Abstract

Background: Neurocognitive disorders (NCD) are a growing health issue and the importance of diagnosis is still debated despite the benefits of making a diagnosis appearing to be greater than the risks. The aim of the present study was to explore the perception of the main benefits and risks to perform a diagnosis workup of NCD in a population of general practitioners (GPs), specialized physicians (SPs), other healthcare professionals (OHPs) and informal caregivers (ICs), and to identify the lowest perceived benefits and the highest perceived risks that could be levers to promote a diagnosis of NCD.

Methods: A standardized questionnaire was submitted to GPs, SPs, OHPs, and ICs aiming to evaluate the importance of eight benefits and eight risks related to NCD diagnosis (selected from the literature) for four prototypical clinical cases at different stages of the disease: subjective cognitive impairment/mild NCD, major NCD at mild/moderate stage, moderate stage with behavioral and psychotic symptoms, and severe stage.

Results: The lowest perceived benefits of making a NCD diagnosis were “access to medical research”, “patient’s right to know” and “initiation of symptomatic drug treatment”. The highest perceived risks of making a NCD diagnosis were “negative psychological impact for the patient”, “absence of disease-modifying treatment” and “absence of suitable institution”.

Conclusions: This study highlights the lowest perceived benefits and the highest perceived risks of making a NCD diagnosis. These benefits and risks could be modified to become levers to promote a personalized diagnosis of NCD.

Introduction

Neurocognitive disorders (NCD) are a major and growing health issue [1], but remain under-diagnosed, and when a diagnosis is made, it is late in the course of the disease at a time when cognition and behavior are already deeply altered [2–5]. For the identification of NCD patients, both an early diagnosis (corresponding to the Chronos conception of time in ancient Greek [6], i.e. chronological time), and timely diagnosis of NCD has emerged (Kairos conception of time [6], i.e. an opportune moment, or right time) [2, 7, 8]. However, the first European joint action on Alzheimer Disease (AD) recommended in 2013 a timely diagnosis that should be accessible to all sections of the community at a stage when people first notice changes in cognition or behavior, complain, or present with a situation at risk [2]. At the personal level, diagnosis of NCD is not experienced in terms such notions of time, and it has recently been reported that personalized diagnosis is more pertinent; the latter is defined as a diagnosis strategy in accordance with the dyad patient/caregiver’s needs and wills respecting the general principle of autonomy and should lead up to a global and personalized care plan established together with the patient, his or her close caregiver, and all the professionals involved [9, 10].

Diagnosis of NCD is associated with benefits for patients, caregivers and society, for example future planning, elaboration of a suitable care plan, better informed patients and patient relatives who will better

understand the symptoms and the course of the disease, access to medical research [9, 11, 12]. Risks related to a NCD diagnosis are also described, and include stigmatization, isolation, and lack of disease-modifying treatment in particular [9, 11, 13]. Many studies report that the general population would like to have the diagnosis if they had NCD [14–19]. We previously reported that perception of benefits of a NCD diagnosis workup was stronger than risks, at each stage of the NCD (from subjective cognitive decline to severe major NCD) among general practitioners (GPs), cognition specialized physicians (SPs; i.e. neurologists, psychiatrists, and geriatricians), other healthcare professionals (OHPs), and informal caregivers (ICs) in a national French survey [9]. Herein we will analyze with the same sample of respondents, the relative importance of each main risk and each main benefit from the point of view of GPs, SPs, ICs and OHPs, and at each stage of NCD, but also between respondents. We hypothesize that the diagnosis workup of NCD could be further promoted by increasing further the balance in favor of benefits, and for this it is important to identify the benefits and risks that could be targeted.

Methods

Study design and setting

This study was a national multicenter descriptive survey conducted in France. A standardized self-administrative questionnaire was sent by email in June 2016 and replies received up to the end of November 2016 were included, as previously described [9]. Participants were free to take part in the study, questionnaires were anonymous, and no incentive was given in exchange for participation to this study. Consent from participants was implied by completion and submission of the questionnaire.

Study population

There were four groups: ICs (contacted via the national patient and caregiver association France Alzheimer), GPs (contacted via departmental councils of the college of physicians and regional unions of private practitioner physicians), cognition SPs (neurologists, geriatricians and psychiatrists contacted via the French federation of memory centers, and private practice neurologist associations), and other OHPs (contacted via professional societies of each specialty).

Data collection

The survey contained four short clinical cases at four different stages of NCD, uninvestigated until now. Case 1 corresponded to a person with isolated memory impairment without autonomy loss (if an investigation was done, the stage would probably be subjective cognitive impairment or mild NCD) [20–22]. Case 2 corresponded to a person with memory and language impairment for the previous 18 months, associated with difficulties in activities of daily living (if an investigation was done, the stage would probably be major NCD at mild/moderate stage) [20, 23]. Case 3 corresponded to a person with cognitive disorders over the 2 previous years and behavioral and psychotic symptoms of dementia (if an investigation was done, the stage would probably be major NCD at moderate/severe stage with behavioral and psychotic symptoms of dementia) [20, 23]. Case 4 corresponded to a person with severe

cognitive impairment and behavioral and psychotic symptoms of dementia with severe loss of autonomy (if an investigation was done, the stage would probably be major NCD at severe stage) [20, 23].

Each case presentation was accompanied by a list of possible benefits and risks of a diagnosis investigation of NCD [2].

The eight benefits were: patient's right to know, future planning through decision-making (advanced healthcare directives, trusted person), initiation of symptomatic drug treatment, initiation of non-drug treatment, elaboration of a suitable care plan, inform the patient and his/her relatives to better understand the disease and its course, relatives' adaptation to the changes, and access to medical research (clinical trials).

The eight risks were: to identify memory disorders related to ageing as abnormal, absence of diagnosis certainty, negative psychological impact for the patient, negative psychological impact for the relative, absence of disease-modifying treatment, difficult access to a diagnosis platform, absence of suitable institution at a specific stage of the disease, and stigmatization, rejection, isolation.

Participants were asked to evaluate benefits and risks to initiate a diagnostic work-up of NCD. The pertinence of benefits and risks were evaluated on a 6-point Likert scale from 0 to 5; 0 being the least pertinent and 5 the most [24]. This was chosen to avoid having a neutral answer. The mean scores of each benefit and risk were calculated for each group (GPs, SPs, OHPs, ICs) at each stage of disease.

Statistical analysis

The following analyses were conducted separately for each of the four cases. For the evaluation of the relative importance of risks and benefits among respondents, the Likert scale scores (dependent variables) for the eight types of benefit (independent variable) were compared using a non-parametric Kruskal-Wallis analysis of variance; as were the eight types of risk (independent variable). Results were summarized in figures as the mean score for each benefit and risk for each case and their 95% confidence intervals [95%CI]. The p value of the Kruskal-Wallis test was reported, as well as the p values for Wilcoxon pair-wise comparisons (corrected using the Holm method) between the type of benefits or risks as appropriate. For the secondary objective, the scores between groups of participants were compared using the Kruskal-Wallis analysis of variance. In this model, the eight scores of benefits and risks were considered as dependent variables, and the group of participants as the independent variable. The p value of the Kruskal-Wallis test was reported. A p value < .05 was considered significant and statistical tests were two-tailed. Statistical analyses were performed using R software version 3.5.2 (R Foundation for Statistical Computing, Vienna, Austria).

Results

Population

Data were collected from 719 subjects: 183 GPs, 176 SPs (114 geriatricians, 52 neurologists, and 10 psychiatrists), 281 OHPs (234 speech therapists, 47 various), and 79 ICs.

Perception of benefits in the total population for each case

The eight benefits were perceived significantly differently in the total population of respondents in each case ($p < 0.001$; Fig. 1). For case 1, the benefits “access to medical research” and “initiation of symptomatic drug treatment” were significantly lower than the other benefits. For cases 2, 3 and 4, the benefits “access to medical research”, “initiation of symptomatic drug treatment”, and “patient’s right to know” were significantly lower than the other benefits (Fig. 1 and Additional file 1 Table A1).

Perception of different risks in the total population for each case

The eight risks were perceived significantly differently in the total population of respondents in each case ($p < 0.01$; Fig. 2). For cases 1 and 2, the risk “negative psychological impact for the patient” was significantly higher than the other risks. For case 3, the highest perceived risk was the “absence of suitable institution at a specific stage of the disease”, whereas for case 4 the highest perceived risk was the “absence of disease-modifying treatment” (Fig. 2 and Additional file 1 Table A2).

Perception of benefits and risks according to type of respondent

In case 1, the perception of benefits and risks was significantly different between respondents, i.e. between GPs, SPs, ICs and OHPs, except for the benefit “elaboration of a suitable care plan” ($p = 0.11$). For case 2, the perception of benefits and risks was significantly different between respondents, except for the benefit “future planning” ($p = 0.64$). For case 3, the perception of benefits and risks was significantly different between respondents, except for the benefit “Initiation of non-drug treatment” ($p = 0.41$). For case 4, the perception of benefits and risks was significantly different between respondents. Overall all the benefits and risks decreased from the case 1 to the case 4 (Figs. 3 and 4, and Additional file 1 Table A3).

Discussion

The present study found that “patient’s right to know”, “access to medical research” and “initiation of symptomatic drug treatment” are the lowest perceived benefits; the “negative psychological impact for the patient”, mostly at the earlier stage, the “absence of suitable institution at a specific stage of the disease” and the “absence of disease-modifying treatment” were the highest perceived risks to make a NCD diagnosis.

The “patient’s right to know” was one of the lowest perceived benefits, although this is the general principle of autonomy [25]. The low perception of a benefit related to “initiation of symptomatic drug

treatment” is, however, understandable in the context of a study conducted in France, as, although symptomatic treatments of AD are still recommended by French scientific and medical societies specialized in NCD, they are no longer reimbursed [26]. An interesting point highlighted in the present study was that, while, the “absence of disease-modifying treatment” was one of most important risks of diagnosis, “access to medical research” was among the least important benefits. This seems to be a paradox, in particular as promoting medical research in primary care seems to be one of the main priorities in NCD [27, 28]. Another point of note is that “negative psychological impact for the patient” was the leading perceived risk of a NCD diagnosis early-on during the course of the disease. This is in accordance with previous studies showing that NCD diagnosis could be accompanied by anxiety, worry, uncertainty or shock, and sometimes with positive coping responses such as optimism [11, 29–31], although there is little evidence to support an increase in negative reactions or suicidal risk after disclosure of NCD diagnosis [11, 30–32]. However, after diagnosis, it is reported that patients often feel without support to manage their uncertainties and emotions, and do not know where to turn for support; furthermore, caregivers also report that they do not receive adequate information [14, 29, 30]. Later-on during the course of the disease, the “absence of suitable institution” became a prominent risk. This is in accordance with previous studies and a review previously pointed to the lack of accessible services for patients with NCD, accompanied by financial barriers for family [12].

Taken together, these risks and benefits could be the most interesting to act upon in order to increase the diagnosis of NCD, and we hypothesize that they could be modified. For instance, recognition of the importance of the “patient’s right to know” could be promoted by greater of knowledge about NCD in the general population and in healthcare professionals, particularly by explaining that patients who suffer from NCD are still able to participate in discussions until the advanced stages of the disease, and that the principle of medical ethics, e.g. the “patient’s right to know” are also valid in the context of NCD.

To decrease the negative psychological impact for patients and caregivers, intervention strategies could be implemented, such as post-diagnosis psychological support, to create a more caring social context for people with dementia [14, 29, 30, 33]. Promoting medical research in primary care, perhaps with mobile research teams, could also increase the perceived utility of diagnosis of NCD, providing patients with potentially new therapeutic options [27, 28]. In addition, a policy to increase the availability of suitable institutions and support for patients and their relatives could be another lever to promote the diagnosis of NCD.

When assessing the differences in the importance of each benefit and risk among the different groups of respondents we found that GPs appeared less sensitive to the “patient’s right to know”, “access to medical research” and “initiation of symptomatic drug-treatment”; GPs could thereby be the main target of the previously described recommendation. However, although in some reports GPs are portrayed as barriers to diagnosis, and accused of fatalism regarding NCD, with a “deficit model of GPs behavior and attitudes” [6], a growing body of evidence indicates that the attitude of the majority of GPs is not characterized by diagnostic and therapeutic nihilism and GPs are very positive about their key role in NCD care [34, 35]. For many patients, consultations with GPs where they discuss for the first time a cognitive

complaint are positive experiences, with feelings of support, familiarity and confidence. However, secondary care and memory clinics appear unfamiliar, frightening and sometimes depersonalizing, which could increase the negative psychological impact [29]. More attention should be paid to support GPs in the management of complexity and uncertainty of NCD cases, and specifically the dilemmas involved in meeting relatives' needs for support over long periods [6].

Strengths of the present study should be highlighted. This national survey included a large and diverse population. The prototypical clinical cases representing different stages of NCD [20–23] understandable by both medical and non-medical participants, constitutes one originality of this study design. Moreover, the present study was completely independent of the pharmaceutical industry. Some limitations must, however, be taken into account when interpreting the results of this survey. Particularly we could not quantify how many received and did not answer the questionnaire because it was sent by many different associations.

Conclusion

In conclusion, this study highlights the lowest perceived benefits and the highest perceived risks to make a NCD diagnosis that could be used as potential levers to promote NCD diagnosis. In particular, better knowledge about NCD, availability of suitable institutions, promotion of medical research, as well as implementation of pre-diagnosis and post-diagnosis interventions such as psychological support, could lead to a better personalized diagnosis of NCD, at the right time defined in terms of Kairos and not Chronos.

List Of Abbreviations

AD: Alzheimer disease; GPs: General practitioners; ICs: Informal caregivers; NCD: Neurocognitive disorders; OHPs: Other healthcare professionals; SPs: Specialized physicians

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the present study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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None

Author's contributions

AGC, JV, NA and PKS were responsible for the conception and design of the study and drafting the manuscript. AGC, JV and NA were responsible for the acquisition of data. AGC, VD and PKS were responsible for the analysis and interpretation of data. AGC, JV, NA, VD and PKS critically revised the manuscript. All authors read and approved the final manuscript.

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References

1. Livingston G, Sommerlad A, Orgeta V, Costafreda SG, Huntley J, Ames D, et al. Dementia prevention, intervention, and care. *Lancet*. 2017;390:2673–734.
2. ALCOVE group. ALCOVE - AlzheimerCooperativeValuation in Europe: European Union Joint Action on Alzheimer's programme of work on Early Diagnosis and Interventions. 2013.

3. Connolly A, Gaehl E, Martin H, Morris J, Purandare N. Underdiagnosis of dementia in primary care: Variations in the observed prevalence and comparisons to the expected prevalence. *Aging Ment Health*. 2011;15:978–84.
4. Pradier C, Sakarovich C, Le Duff F, Layese R, Metelkina A, Anthony S, et al. The Mini Mental State Examination at the Time of Alzheimer's Disease and Related Disorders Diagnosis, According to Age, Education, Gender and Place of Residence: A Cross-Sectional Study among the French National Alzheimer Database. Brucki S, editor. *PLoS ONE*. 2014;9:e103630.
5. Woods B, Arosio F, Diaz A, Gove D, Holmerová I, Kinnaird L, et al. Timely diagnosis of dementia? Family carers' experiences in 5 European countries. *Int J Geriatr Psychiatry*. 2019;34:114–21.
6. Dhedhi SA, Swinglehurst D, Russell J. "Timely" diagnosis of dementia: what does it mean? A narrative analysis of GPs' accounts. *BMJ Open*. 2014;4:e004439.
7. Alzheimer's Association. Early Detection and Diagnosis of Alzheimer's. Policy Brief. 2017;6.
8. Brooker D, Fontaine JL, Evans S, Bray J, Saad K. Public health guidance to facilitate timely diagnosis of dementia: Alzheimer's COoperative Valuation in Europe recommendations: Timely diagnosis of dementia. *Int J Geriatr Psychiatry*. 2014;29:682–93.
9. Garnier-Crussard A, Vernaoudon J, Auguste N, Moutet C, Dauphinot V, Krolak-Salmon P. Perception of Benefits and Risks of Neurocognitive Disorders Diagnosis: A French National Survey. *J Alzheimers Dis*. 2019;67:1267–75.
10. Krolak-Salmon P, Maillet A, Vanacore N, Selbaek G, Rejdak K, Traykov L, et al. Toward a Sequential Strategy for Diagnosing Neurocognitive Disorders: A Consensus from the "Act On Dementia" European Joint Action. *J Alzheimers Dis*. 2019;72:363–72.
11. Dubois B, Padovani A, Scheltens P, Rossi A, Dell'Agnello G. Timely Diagnosis for Alzheimer's Disease: A Literature Review on Benefits and Challenges. Saykin A, editor. *J Alzheimers Dis*. 2016;49:617–31.
12. Bradford A, Kunik ME, Schulz P, Williams SP, Singh H. Missed and delayed diagnosis of dementia in primary care: prevalence and contributing factors. *Alzheimer Dis Assoc Disord*. 2009;23:306–14.
13. Vernooij-Dassen MJFJ, Moniz-Cook ED, Woods RT, Lepeleire JD, Leuschner A, Zanetti O, et al. Factors affecting timely recognition and diagnosis of dementia across Europe: from awareness to stigma. *Int J Geriatr Psychiatry*. 2005;20:377–86.
14. Connell CM, Boise L, Stuckey JC, Holmes SB, Hudson ML. Attitudes Toward the Diagnosis and Disclosure of Dementia Among Family Caregivers and Primary Care Physicians. *Gerontologist*. 2004;44:500–7.
15. Fowler NR, Boustani MA, Frame A, Perkins AJ, Monahan P, Gao S, et al. Impact of patient perceptions on dementia screening in primary care. *J Am Geriatr Soc*. 2012;60:1037–43.
16. Breining A, Lavallart B, Pin S, Leon C, Moulias S, Arwidson P, et al. Perception of Alzheimer's disease in the French population. *J Nutr Health Aging*. 2014;18:393–399.
17. Robinson SM, Canavan M, O'Keeffe ST. Preferences of older people for early diagnosis and disclosure of Alzheimer's disease (AD) before and after considering potential risks and benefits. *Arch Gerontol Geriatr*. 2014;59:607–12.

18. Europe Alzheimer. European Carers' Report 2018. 2018;48.
19. Mahieux F, Herr M, Ankri J. What are the preferences of patients attending a memory clinic for disclosure of Alzheimer's disease? *Rev Neurol*. 2018;174:564–70.
20. Diagnostic and statistical manual of mental disorders: DSM-5. Fifth edition. Arlington, VA: American Psychiatric Publishing; 2013.
21. Jessen F, Amariglio RE, van Boxtel M, Breteler M, Ceccaldi M, Chételat G, et al. A conceptual framework for research on subjective cognitive decline in preclinical Alzheimer's disease. *Alzheimers Dement*. 2014;10:844–52.
22. Albert MS, DeKosky ST, Dickson D, Dubois B, Feldman HH, Fox NC, et al. The diagnosis of mild cognitive impairment due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimers Dement*. 2011;7:270–9.
23. McKhann GM, Knopman DS, Chertkow H, Hyman BT, Jack CR, Kawas CH, et al. The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimers Dement*. 2011;7:263–9.
24. Likert R. A technique for the measurement of attitudes. [New York]: The Science Press; 1932.
25. Meyers BS. Telling patients they have Alzheimer's disease. *BMJ*. 1997;314:321–2.
26. Krolak-Salmon P, Dubois B, Sellal F, Delabrousse-Mayoux J-P, Vandel P, Amieva H, et al. France Will No More Reimburse Available Symptomatic Drugs Against Alzheimer's Disease. *Journal of Alzheimer's Disease*. 2018;1–3.
27. Winblad B, Amouyel P, Andrieu S, Ballard C, Brayne C, Brodaty H, et al. Defeating Alzheimer's disease and other dementias: a priority for European science and society. *Lancet Neurol*. 2016;15:455–532.
28. Cummings J, Lee G, Ritter A, Sabbagh M, Zhong K. Alzheimer's disease drug development pipeline: 2019. *Alzheimers Dement (N Y)*. 2019;5:272–93.
29. Samsi K, Abley C, Campbell S, Keady J, Manthorpe J, Robinson L, et al. Negotiating a Labyrinth: experiences of assessment and diagnostic journey in cognitive impairment and dementia. *Int J Geriatr Psychiatry*. 2014;29:58–67.
30. Aminzadeh F, Byszewski A, Molnar FJ, Eisner M. Emotional impact of dementia diagnosis: Exploring persons with dementia and caregivers' perspectives. *Aging Ment Health*. 2007;11:281–90.
31. Antoine P, Pasquier F. Emotional and Psychological Implications of Early AD Diagnosis. *Med Clin North Am*. 2013;97:459–75.
32. Mormont E, Jamart J, Jacques D. Symptoms of depression and anxiety after the disclosure of the diagnosis of Alzheimer disease. *J Geriatr Psychiatry Neurol*. 2014;27:231–6.
33. Cheston R, Jones K, Gilliard J. Group psychotherapy and people with dementia. *Aging Ment Health*. 2003;7:452–61.

34. Tang EYH, Birdi R, Robinson L. Attitudes to diagnosis and management in dementia care: views of future general practitioners. *International psychogeriatrics*. 2016;30:425–30.

35. Giezendanner S, Monsch AU, Kressig RW, Mueller Y, Streit S, Essig S, et al. General practitioners' attitudes towards early diagnosis of dementia: a cross-sectional survey. *BMC Fam Pract*. 2019;20:65.

Figures

Figure 1

Relative importance of different benefits in the decision to carry out a NCD diagnosis. Means and 95% confidence interval of each benefit and each stage in the total population of respondents are presented.

Figure 4

Relative importance of different risks in the decision to carry out a NCD diagnosis. Means and 95% confidence interval of each risk and each stage in the total population of respondents are presented.

Figure 7

Perception of the 8 benefits of NCD diagnosis, for each respondent and each case. *** $p < .001$, ** $p < .01$, * $p < .05$, ns non-significant: differences between respondent for each case (Kruskal-Wallis test).

Figure 10

Perception of the eight risks of NCD diagnosis, for each respondent and each case. *** $p < .001$, ** $p < .01$, * $p < .05$, ns non-significant: differences between respondents for each case (Kruskal-Wallis test).

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