

図2 脳梗塞既往の高血圧患者の肺炎発症率

脳梗塞患者には ACE 阻害薬通常使用量の半分で不顕性誤嚥が消失することが報告されている¹⁰⁾。したがって、極端な低血圧患者でないかぎり量を減らして投与してもある程度効果があると考えている。

ACE 阻害薬の投与を最も躊躇する場合は、極端な嚥下障害が存在したり、意識レベルが悪かったり不安定だったりして、薬の内服が困難な場合である。もちろん、胃瘻などが増設されている患者に対しては粉碎して胃瘻から投与することができるが、胃瘻を躊躇する場合やその段階にいたらない場合にも ACE 阻害薬に効果があることがわかっているので投与したい。そのようなときは、なるべく内服可能な状態まで患者の嚥下能力を高めてから投与する工夫を我々は行っている。その方法を以下に紹介する。

脳卒中後肺炎急性期に対する抗生剤と ACE 阻害薬の併用効果

一旦肺炎となった脳卒中後の患者に抗菌薬を使用するが、そのときにもさらに ACE 阻害薬を抗菌薬と併用することも非常に意義がある。表 1 に示されるように、この併用療法によって肺炎を治療するための抗菌薬の使用量を半分に減少させ、入院日数を3分の2に短縮し、治療費を3分の2に減少できた⁹⁾。しかも、MRSA の発症も少なく、肺炎の死亡も少ない。つまり、急性期においても誤嚥を防ぐことが肝要である。

表 1 老人性肺炎治療において誤嚥対策の薬 (ACE 阻害薬やアマンタジジン) 併用群とそうでない群の比較

項目	非併用群 (n=35)	併用群 (n=33)	P 値
年齢 (平均±SD)	78±8	78±7	0.83
性 (男/女)	7/28	10/24	0.53
Barthel Index (平均±SD)	34±15	35±16	0.70
抗生剤使用日数 (平均±SD)	39±22	17±12	<0.01
在院日数 (平均±SD)	51±36	37±22	0.04
医療費 (\$/人) (平均±SD)	15114 ±10806	10766 ±6148	<0.05
MRSA 感染 (人)	16	4	<0.01
病院内での死亡数	15	5	0.03

脳卒中後の肺炎予防としての ACE 阻害薬の適応

以上のように ACE 阻害薬が脳卒中後の肺炎に対して効果的であることがおわかりいただけたと思う。しかしご存知のように、ACE 阻害薬は本来降圧薬として開発されたものでありあまり血圧の低いヒトには使用が難しい。しかしながら、高血圧の脳梗塞患者のみに使用するものではなく、正常血圧の

黒胡椒匂い刺激

きっかけは、介護保険施設の職員から聞いた話であった。食欲の無い入所者のラーメンに胡椒をかけてあげたら食が進んだ、という話を聞いて我々は研究を進めた。宮城県内の介護保険施設で70~98歳(平均約85歳)の男女入所者105人を3グループに分け、それぞれ一ヶ月間毎食事前に黒胡椒の匂いのする製油、ラベンダー精油、水の匂いを嗅いでもらった。そして、先に述べた嚥下反射の潜時を測定したところ、実験前は平均15~17秒だったのが、黒胡椒精油のグループだけが大幅に改善され平均約4秒になった。

さらに、血中のサブスタンス P 濃度も黒胡椒精油群のみが有意に増加していたのである (図 3)¹¹⁾。この黒胡椒匂い刺激は非侵襲的でどんな状態の患者にも使用でき、また副作用などはみあたらない。脳卒中後で意識レベルの低い患者、重度の嚥下障害患者にはこの黒胡椒匂い刺激により嚥下能力を改善し、経口摂取までもっていく試みが有用である。現在この方法を応用した新しいドラッグガステリパリーシステムが完成し実用化されている¹²⁾。

ACE 阻害薬と喫煙

喫煙は脳卒中などの動脈硬化性疾患の最も重要な危険因子の一つである。したがって禁煙は最重要課題であるが、禁煙の成功率は低くまた、現在のところ禁煙補助薬の保険適用の敷居も高い。ところで、先述の咳反射を一見呼吸器疾患を有していない健康喫煙者においてしらべてみると、そういった人々は同年齢の非喫煙者と比較して咳反射感受性が低下している (図 4)¹³⁾。つまり喫煙愛好者ははじめから

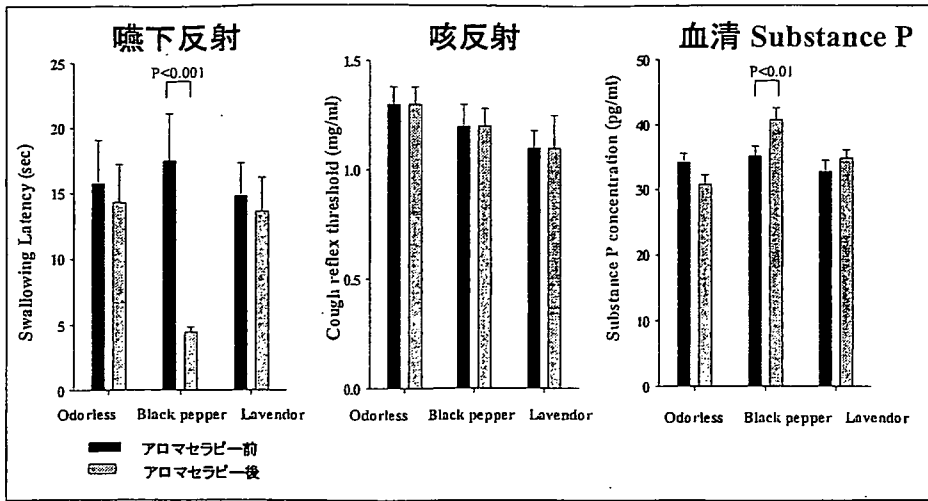


図3 黒胡椒匂いによる嚥下反射の改善効果

咳反射が低下していて、煙草の煙などで咳き込まない人が愛煙家となっていくようである。これに、先ほどまで解説してきたACE阻害薬のサブスタンスPを上昇させ咳反射感受性を鋭敏にする作用を応用する。すると喫煙による咳き込みが誘発され、禁煙の手助けとなる場合が考えられる¹⁴⁾。これまでのところ、喫煙に対する薬物療法はニコチン置換療法が唯一である。しかし、ACE阻害薬あるいはその類似薬はまったく新しい概念の喫煙に対する薬物療法となる可能性がある。

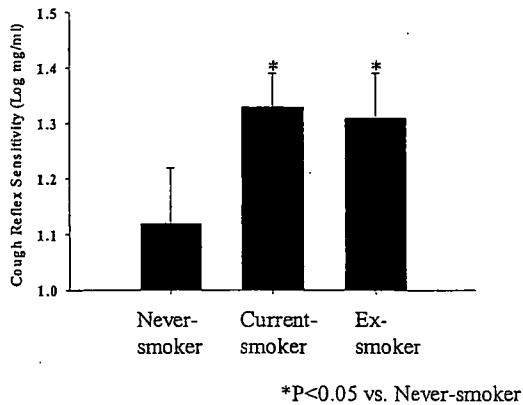


図4 健常高齢 never-, current, ex-smoker における咳反射の比較

おわりに

以上、新しい治療法の開発は日常の臨床や診療・介護から生まれてくることもあるということがご理解いただけたと思う。私も老年科医は、高齢者を臓器横断的に診察し、診断・治療する医師である。いわゆる総合診療部との違いは、老年者の特性により完全な疾病の治療は不可能な場合が多く、その場合は高齢者の機能維持に知恵・労力を注ぐことにある。そして長期的にフォローアップしていくことで

ある。患者を長期的にフォローしてそこでの薬剤のさまざまな作用や日常生活からヒントを得て高齢者に対する新たな治療法の一つでも多く見つけていきたいと考えている。

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特集：高齢者の摂食・嚥下障害

TOPICS

1. 摂食・嚥下障害治療の新機軸

—温度感受性受容体を介する新戦略—

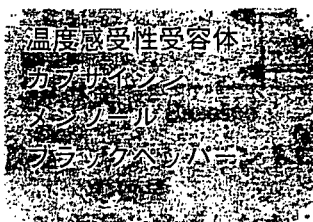
海老原 覚

1. 摂食・嚥下障害治療の新機軸

—温度感受性受容体を介する新戦略—

海老原 覚*

KEY WORD



POINT

- 高齢者の嚥下反射はたとえ障害されていても温度感受性である。
- 温度感受性受容体チャンネルを刺激してあげることにより、嚥下反射が改善する可能性がある。
- 重度の摂食・嚥下障害で経口が不可能な患者には、ブラックペッパー精油の嗅覚刺激が有用である。

■ はじめに

高齢者の摂食・嚥下障害は非常に難治性の疾患であり、かつ誤嚥性肺炎など致死状況の最危険因子である。また、介護上の大きな負担でもある。なんとか少しでも改善する方法がないかと考え、日夜取り組んできた。最近、そのヒント＝新機軸を見出したので紹介する。

■ 嚥下と食物の温度

これまでの摂食・嚥下障害に対する食物のアプローチとしては、主に“とろみ”などといった食物の物性にのみ注目が置かれていたきらいがある。しかしながらわれわれは、高齢者の嚥下機能はたとえ障害されていても温度感受性であり、それゆえに経口摂取時の食物の温度がその物性と同じように誤嚥予防に大事であることを見出した。摂食・嚥下障害があり嚥下反射が遅延している高齢者に、様々の温度の蒸留水(1cc)を口蓋垂の高さまで挿入した経鼻カテー

テルより注入し、蒸留水注入から嚥下運動が起こるまでの時間を嚥下反射の潜時として測定すると、注入した蒸留水の温度と潜時との関係は図1のようにベル形となった¹⁾。体温付近(30~40℃)において最も嚥下反射が遅延し、温度がそれから離れれば離れるほど嚥下反射の潜時が短縮したのである(図1)。本結果は、高齢者の食事は熱いもの、冷たいものの方が嚥下を改善するということを示している。

高齢者の介護食は介護者の負担減の観点から、えてして作りおきになりがちであるが、本研究の結果からは温度に変化をつけて食事を出すことの重要性が示唆されている。食事は食べる直前に料理し、できたてを食べるようにした方がいい。作りおきをそのまま出すのはもったいなかで、常に電子レンジなどで直前に温めることの重要性が示唆されている。また、高齢者は食事に時間がかかるので、目の前でグツグツ煮ている鍋物や、ジュージュー焼いている鉄板焼きなどを介護食として考慮する必要性もあるのではないと思われる。そういったものが食欲もそそり、栄養改善にもつながる。

*えびはら さとる：東北大学医学部老年病態学講座

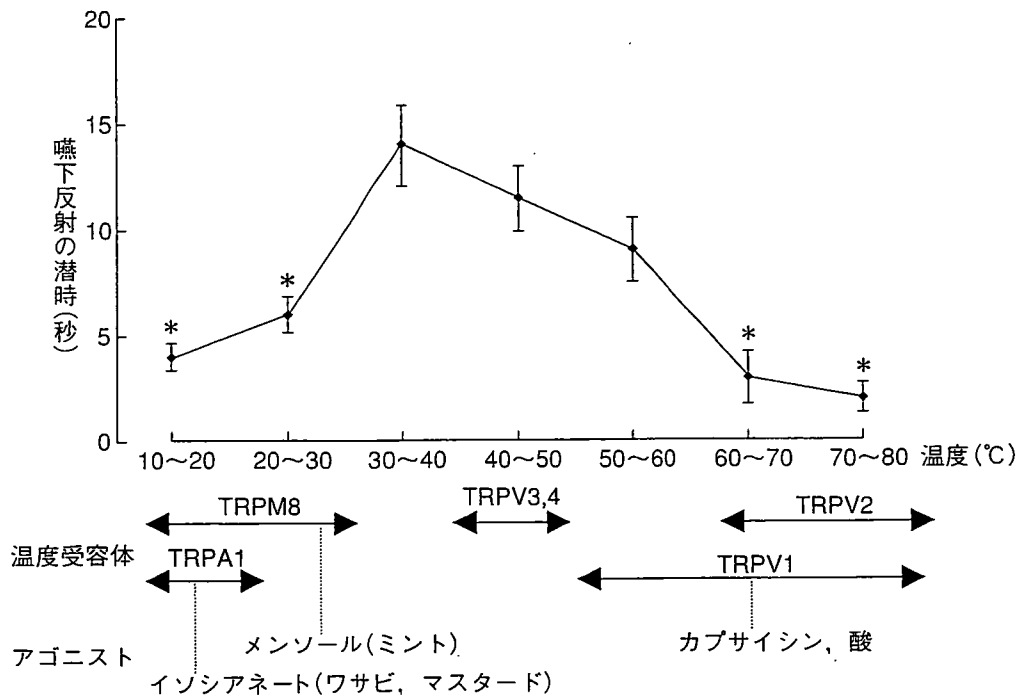


図1 食物の温度と嚥下反射の関係(上段)
 中段にはその温度感受性に関係する可能性のある温度受容体を表示、下段にはそれぞれの温度受容体のアゴニスト(食物成分)を表示する。

温度感受性受容体刺激による 摂食嚥下障害改善

外界の温度受容は、末梢感覚神経が温度刺激を電気信号に変換して、その情報が中枢へと伝達されると考えられているが、温度受容に関わる分子として、哺乳類では末梢神経上に6つのTRPチャンネル；TRPV1, TRPV2, TRPV3, TRPV4, TRPM8, TRPA1が知られており、それぞれに活性化温度閾値が存在する(TRPV1>43°C, TRPV2>52°C, TRPV3>32~39°C, TRPV4>27~35°C, TRPM8<25~28°C, TRPA1<17°C)²⁾。図1の下部に示されるように、嚥下反射を活性化する温度領域よりこれまで同定されている6個の温度感受性TRPチャンネルのうち、TRPV1, TRPV2, TRPM8, TRPA1が嚥下反射の活性化に参与する可能性が示唆された。

温度感受性受容体活性化による 嚥下改善法

これまで既にわれわれは、TRPV1の急性刺

激により一過性に嚥下反射が改善することを示してきた³⁾。そこで、TRPV1を慢性的に刺激することにより嚥下反射が持続的に改善されるかどうか、TRPV1アゴニストであるカプサイシンの含有トローチを作成して調べた(図2A)。カプサイシントローチおよびそのプラセボを、施設入所中の高齢者をランダムに2群に分け投与し、1カ月の中期投与の効果をみたところ、1カ月の毎食前のカプサイシン投与により、カプサイシン含有トローチ群においてプラセボ群と比べ、有意に嚥下反射および咳反射が改善した(図2B)⁴⁾。つまりカプサイシントローチなどにより、口腔および咽頭部のTRPV1の慢性刺激が嚥下反射を改善することが証明されたのである。このようなトローチの投与は、高齢者の誤嚥性肺炎の予防につながるものと思われる。

涼冷刺激受容体活性による嚥下改善法

図1の結果より、熱刺激と同様に冷刺激も嚥下反射を改善することがわかった。これまでミントの主成分のメンソール(menthol)が清涼感

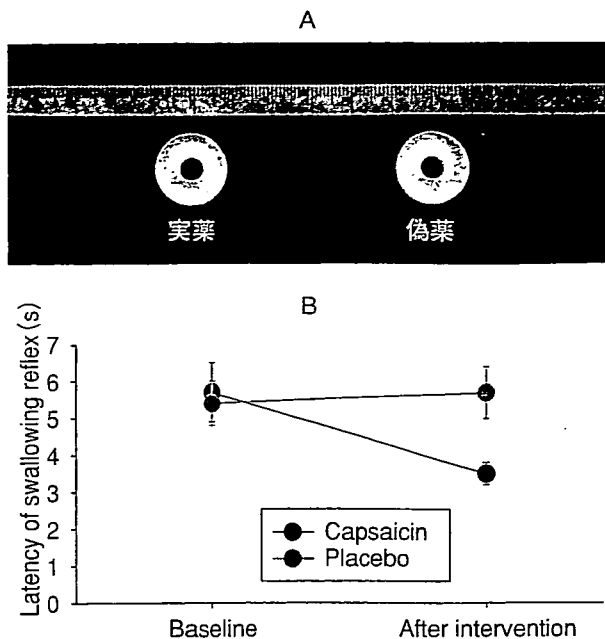


図2 カプサイチンローチ投与の嚥下反射への効果

A: 研究に使用したカプサイチンローチの実薬(左)と偽薬(右). B: カプサイチンローチを毎食前1カ月投与した前後における高齢者の嚥下反射. 実薬を投与した群で有意に改善している.

をもたらすことが知られていたが、2002年に涼冷刺激受容体遺伝子がメンソールの受容体TRPM1としてクローニングされた。そこでわれわれは、嚥下反射の遅延した高齢者に対し、 $10^{-4}M$ 、 $10^{-3}M$ 、 $10^{-2}M$ のメンソール溶液とice cold waterを注入し、嚥下反射の潜時を測定した。高齢者の遅延した嚥下反射は、メンソールの用量依存性に改善される(短くなる)ことが判明した(図3A)⁵⁾。このことは、これまで摂食・嚥下障害のリハビリテーションとして行われていたアイスマッサージという理学療法と同じ効果が、メンソール投与により薬物療法として得られることを示唆する。さらに、メンソールなどの入った食品(ミント入りゼリーなど)(図3B)が、絶食から開始する嚥下訓練食として適していることを示唆する。

■ ブラックペッパー匂い刺激による嚥下改善

これまでの摂食・嚥下障害に対する薬物療法

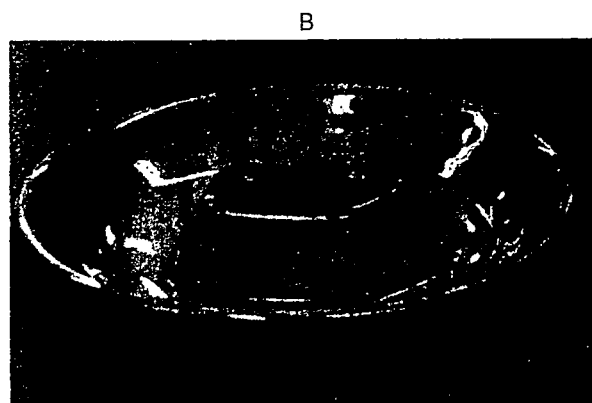
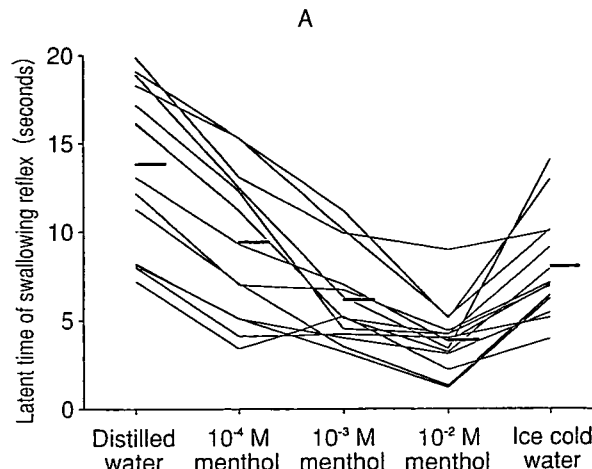


図3 メンソールの高齢者の遅延した嚥下反射に対する効果

A: メンソールは高齢者の嚥下反射を用量依存性に改善する. B: メンソールが入った食品は嚥下改善の機能をもつ食品として期待できる.

は、誤嚥のリスクのある人に薬を内服させるという、ある意味矛盾を含んでいる方法であり、また非常にADL・意識レベルの悪い人には用いることができない。そこで、非常にADL・意識レベルが悪く、とても経口の方法がとれないような高齢者に対する摂食・嚥下改善法として、嗅覚刺激による方法を考案した。嗅覚刺激によって、誤嚥と関係のある脳血流低下部位の脳血流を回復させることができる方法を開発した(図4A)。高齢施設入所者を任意に3群に分け、ブラックペッパー群、ラベンダー群、臭いなし群に振り分けた。それぞれブラックペッパー精油、ラベンダー精油、何もつけないヌエットによって、毎食前1分間の嗅覚刺激を1カ月間行った。嗅覚刺激介入の前後で、嚥下反射、咳反射(クエン酸法)、末梢血中のサブスタンス

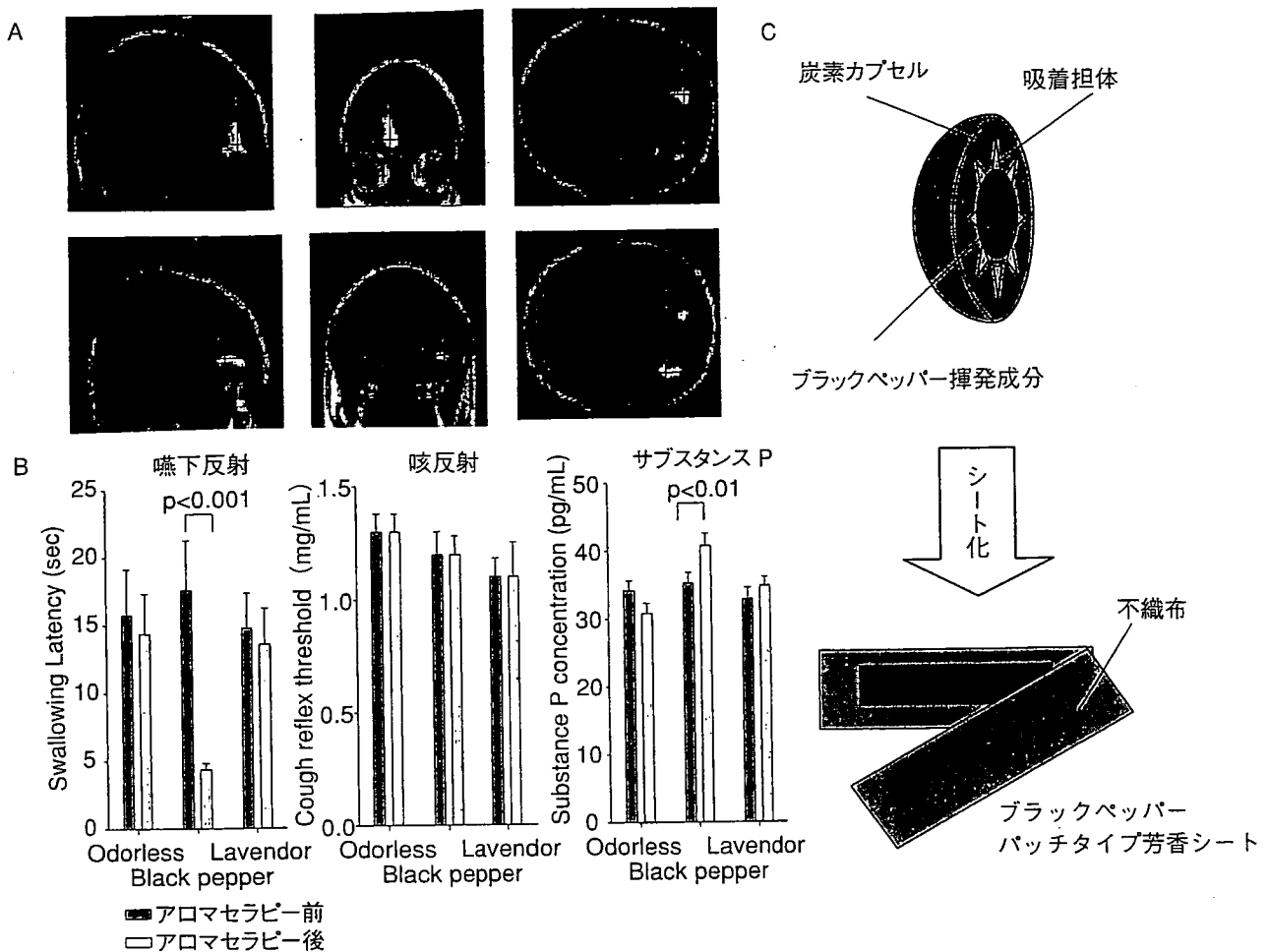


図4 ブラックペッパー匂い刺激の嚥下反射改善効果

A: ブラックペッパー匂い刺激は摂食・嚥下障害患者の前帯状回と島の血流を改善する。B: ブラックペッパー匂い刺激は血清サブスタンスP濃度を上昇させ、嚥下反射を改善する。C: ブラックペッパー匂い刺激を介護者の負担なく行うための新規ドラッグガスデリバリーシステム(ブラックペッパーパッチタイプ芳香シート)の開発。

P濃度を測定した(図4B)。嗅覚刺激の前後で嚥下反射を測定し比較したところ、ブラックペッパー刺激により嚥下反射が著明に改善した。同時に血液中のサブスタンスP濃度も有意に上昇した⁶⁾。ラベンダー群、コントロール群ではこのようなことはなかった。このブラックペッパー匂い刺激によるアロマセラピーはどんな状態の悪い患者にも行えるので、非常に有望な摂食・嚥下障害治療法・誤嚥性肺炎予防法であると思われた。

しかしながら、精油を利用した匂い刺激は面倒で、介護者の負担増加を招く。そこでわれわれは、ブラックペッパー精油の芳香成分を吸着担体に吸着させ、それを炭素カプセルにくるむことにより、24時間連続して成分をターゲッ

トまで輸送する新規ドラッグガスデリバリーシステムを開発した(ブラックペッパーパッチタイプ芳香シート)(図4C)。これを使うことにより、1日1回のパッチシートの張替えで、恒常的に安定してブラックペッパー精油の芳香成分により嗅覚刺激を行うことができるようになった。効果は、ブラックペッパー精油による直接刺激とほとんど差異はみられなかった。

■ 食事開始プロトコール

重症の誤嚥性肺炎の患者が入院したときは、基本的に絶食である。抗生物質などの治療により患者が回復したとき、食事を開始する過程が実は誤嚥性肺炎の治療において最も重要で、か

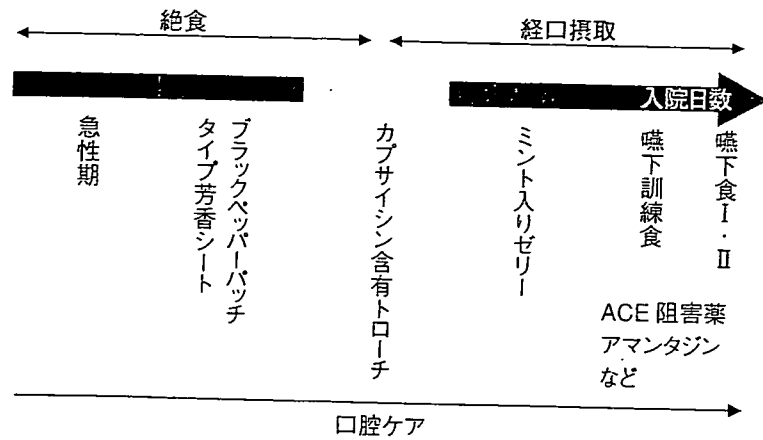


図5 摂食・嚥下障害患者の食止めから食事を再開するときのプロトコール

つチャレンジングなステップである。そこでわれわれは、これまでのわれわれの研究成果を終結した，図5に示されるような摂食・嚥下障害患者の食事開始プロトコールを立案する。このプロトコールを重症の誤嚥性肺炎の患者が入院し，回復したとき，食事を開始するときを採用することにより，多くの高齢者が胃瘻を回避できるものと思われる。さらに，このプロトコールは誤嚥性肺炎の絶食からの食事開始時のみならず，すべての摂食・嚥下障害の摂食訓練やリハビリテーションに応用できるものと思われる。これらのわれわれの最新の研究成果＝新機軸を駆使することにより，高齢者の摂食・嚥下機能を保て，食べるという人間の基本的な楽しみが維持され，高齢者の尊厳が維持できるものと思われる。

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Attitudes toward disclosing the diagnosis of dementia in Japan

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ABSTRACT

Background: The rapid increase in the elderly population in Japan has triggered a debate on whether or not patients with dementia should be informed of their diagnosis. The purpose of the present study was to investigate the attitudes of people in a large city in Japan toward the disclosure of a diagnosis of dementia.

Methods: In Study 1, 2000 residents aged 40–64 and 5000 residents aged 65 and over were sampled randomly, and a structured questionnaire was sent to them by mail. In Study 2, we administered a structured interview-based questionnaire to 3949 randomly enrolled residents of Nagoya City aged 45 and over whose family member had been certified as needing long-term care.

Results: In Study 1, 79.8% of the younger respondents ($n = 710$) stated that they would prefer the disclosure of a hypothetical diagnosis of dementia, as did 75.5% of the older respondents ($n = 2162$). Furthermore, 85.1% ($n = 749$) of the younger respondents and 82.5% ($n = 2181$) of the older respondents stated that they would prefer that the patient be told his or her hypothetical diagnosis of dementia. In Study 2, in the case of care recipients without dementia, 68.3% ($n = 650$) of their family members preferred disclosure of a hypothetical diagnosis of dementia. Among the families of care recipients who had dementia, 58.4% ($n = 301$) of family members preferred disclosure.

Conclusions: The present survey of caregivers and non-caregivers in an urban city of Japan demonstrated that the desire for disclosure of a diagnosis of dementia is relatively high.

Key words: dementia, diagnosis, long-term care insurance system, adult guardianship

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Introduction

Japan has been experiencing the fastest growth of the elderly population in the world and the percentage of the population aged 65 years old and over finally exceeded 20% in 2006. A mandatory social long-term care insurance system was therefore implemented in Japan in April 2000; all people aged 65 and older are eligible to benefit from institutional and community-based services upon certification of their need for care. In 2003, more than 3.8 million people were certified to receive long-term care insurance benefits in Japan. In parallel with the introduction of long-term care insurance, the adult guardianship law came into effect to shift the system from one of enforcement to one of contract. The law is applied to a person whose mental capacity is impaired due to dementia, mental deficiency or mental illness, and is aimed at securing legal advocacy of his/her own autonomy (Nakatani, 2000).

With the increase in the elderly population, the number of people with dementia is also steadily increasing. Because patients with dementia may be unable to understand the implications of their diagnosis or make decisions on clinical, social or financial issues, their caregivers have a unique role in the process of disclosing the diagnosis of dementia. A growing national concern for older people with dementia, particularly after the introduction of the long-term care insurance system and the increase in the number of people with dementia, has triggered a debate on whether or not patients should be informed of their diagnosis.

The results of previous reports on the opinions of caregivers toward diagnostic disclosure of dementia to the care recipients were largely inconsistent (Bamford *et al.*, 2004). In Japan the results of domestic reports regarding this issue were also in disagreement (Sugiyama *et al.*, 2003; Yamashita *et al.*, 2002). In the present study we surveyed the attitudes of both caregivers and non-caregivers toward the disclosure of a diagnosis of dementia; our subjects were a population sampled in a large city in Japan.

Methods

The study consisted of two protocols, both of which were carried out in Nagoya City, which is located in the central part of Japan. Nagoya City has a population of 2 202 259 (April 2004), of whom 18.0% are 65 years of age or older. This study was developed and organized by Nagoya City and was supported by the Department of Geriatrics of Nagoya University Graduate School of Medicine. Written informed consent was obtained from all participants.

Study 1

Two thousands residents aged 40–64 and 5000 residents aged 65 and over were sampled randomly and a structured questionnaire was sent to them in December 2004. People residing in long-term care facilities and those admitted to hospitals were excluded. The questionnaire asked the participants about their background, their perceptions of dementia, level of anxiety about possible future dementia, awareness of the adult guardianship law and attitude toward the disclosure of a diagnosis of dementia. The care needs of the older participants were also surveyed. In the long-term care insurance system in Japan, all care recipients have their care needs categorized into seven levels [not eligible (independent), need support, and care need levels 1–5] depending on their physical and mental capabilities.

Study 2

We randomly enrolled 3949 residents of Nagoya City aged 45 and over who had been certified as requiring long-term care. Of these participants, 1885 were actively using at least one type of service provided by public long-term care insurance, and 2064 were not currently using any of these services. A structured interview-based questionnaire was administered to the families of the enrolled people by the investigators to evaluate the physical and mental status of the participants for determination of their care needs. Home-visit interviews were carried out between October and November 2004. The questionnaire asked about the background of the people in need of care, the awareness of the family caregiver of the adult guardianship law and the attitude of the caregiver toward the disclosure of a diagnosis of dementia. If the people in need of care were found to have dementia at the time of the questionnaire, a short memory questionnaire (SMQ; Koss *et al.*, 1993) was administered and the possibility of disclosure to the patient was investigated.

Statistical analysis

Pearson's correlation coefficients (r) were calculated for parametric data and Spearman's rank-order correlation coefficients (ρ) were calculated for non-parametric data. We used the χ^2 -test, the Kruskal–Wallis test and a one-way analysis of variance (ANOVA) for categorical comparisons of the data. Tukey's test was performed for multiple comparisons when the ANOVA showed a significant difference. Differences in the means of the SMQ among the groups were tested using the Student's t -test. A p -value of < 0.05 was considered to indicate statistical significance; all tests were two-tailed. All statistical analyses were performed on a personal computer with the statistical package SPSS 11.0 for Windows (SPSS, Inc., Chicago, IL, USA).

Results

Study 1

A total of 942 younger residents (47.1%) and 3273 (65.5%) older residents returned our questionnaire. Among the older residents, 173 were excluded because they were in hospital ($n=53$), were residing in long-term care facilities ($n=106$), had moved or died ($n=5$), or the address of residence was unknown ($n=9$). Characteristics of the respondents are shown in Table 1.

The perceptions of dementia by the respondents are shown in Table 2. Trends in answers are similar in younger and older participants. Approximately half of the participants answered that dementia is a morbid condition and more than 40% regarded dementia as a progressive disease. More than 10% of the respondents were not familiar with dementia as a disease.

Among the younger respondents, 34.1% ($n=308$) said that they feared that they might develop dementia in the future, and 32.0% of the older

Table 1. Characteristics of responders in Study 1

	YOUNGER RESPONDENTS ($n=942$)	OLDER RESPONDENTS ($n=3100$)	<i>p</i> -VALUE
Gender			
Male	395 (42.3)	1403 (45.6)	< 0.042
Female	538 (57.7)	1673 (54.4)	
Age (years)			
40-49	306 (32.5)		
50-59	394 (41.9)		
60-64	241 (25.6)		
65-69		934 (30.3)	
70-79		1548 (50.3)	
80-89		541 (17.6)	
90+		57 (1.9)	
Certified care needs			
None		2548 (87.1)	
Need support		123 (4.2)	
Level 1		124 (4.2)	
Level 2		52 (1.8)	
Level 3		40 (1.4)	
Level 4		24 (0.8)	
Level 5		16 (0.5)	
Residency status			
Live by oneself	78 (8.6)	538 (20.6)	< 0.001
Live with spouse	199 (21.9)	282 (10.8)	
Other	633 (69.6)	1794 (68.6)	

Values are n (%).

Table 2. Perceptions of dementia among respondents

	YES	TEND TO YES	TEND TO NO	NO
Younger respondents				
Morbid condition	480 (67.9)	165 (23.3)	32 (4.5)	30 (4.2)
Disease of increasing frequency	466 (66.4)	181 (25.8)	35 (5.0)	20 (2.8)
Anyone may have dementia	441 (62.8)	163 (23.2)	53 (7.5)	45 (6.4)
Unfamiliar and scary disease	428 (48.0)	257 (28.8)	109 (12.2)	97 (10.9)
Familiar disease	302 (42.4)	280 (39.3)	86 (12.1)	44 (6.2)
Fatal disease	338 (38.9)	269 (30.9)	137 (15.7)	126 (14.5)
Disease unrecognized by society	303 (33.9)	360 (40.3)	129 (14.4)	102 (11.4)
Shameful disease	140 (15.7)	237 (26.7)	211 (23.7)	301 (33.9)
Untreatable disease	93 (10.4)	167 (18.7)	254 (28.4)	379 (42.4)
Older respondents				
Morbid condition	1528 (60.7)	659 (26.2)	194 (7.7)	135 (5.4)
Disease of increasing frequency	1387 (58.1)	775 (32.5)	218 (9.1)	8 (0.3)
Anyone may have dementia	1307 (50.5)	715 (27.6)	292 (11.3)	272 (10.5)
Unfamiliar and scary disease	1520 (60.5)	593 (23.6)	187 (7.4)	214 (8.5)
Familiar disease	1149 (44.9)	992 (38.8)	260 (10.2)	156 (6.1)
Fatal disease	978 (51.8)	631 (33.4)	275 (14.6)	5 (0.3)
Disease unrecognized by society	1112 (44.8)	832 (33.5)	250 (10.1)	290 (11.7)
Shameful disease	762 (31.2)	628 (25.7)	378 (15.5)	678 (27.7)
Untreatable disease	451 (18.1)	525 (21.0)	541 (21.7)	979 (39.2)

Values are *n* (%).

respondents ($n=927$) had the same fear. Another 29.3% ($n=265$) of younger and 28.3% ($n=821$) of older respondents stated that they sometimes feared future dementia, while 28.1% ($n=254$) of younger and 28.0% of older respondents ($n=813$) rarely had this fear. Eight and a half percent ($n=77$) of younger respondents and 11.7% of older respondents ($n=339$) had no fear at all that they might have dementia in the future.

With regard to the adult guardianship law, 30.5% ($n=271$) of younger respondents and 28.6% ($n=797$) of older respondents knew about the law, but the majority of both younger ($n=617$, 65.5%) and older respondents ($n=1994$, 71.4%) did not know about it.

To a question assuming that the respondent would be afflicted with dementia in the future, 79.8% ($n=710$) of younger respondents and 75.5% ($n=2162$) of older respondents stated they would prefer to be told their diagnosis, while only 3.4% ($n=30$) of younger respondents and 4.8% ($n=138$) of older respondents do not wish to be told. The rest answered "don't know." The percentage of younger respondents who preferred disclosure was significantly higher than that of older respondents ($p=0.025$); the reasons given for preferences regarding disclosure are shown in Table 3. Some of these reasons show a significant

Table 3. Disclosure of a diagnosis of dementia

REASONS WHY RESPONDENTS PREFER BE DISCLOSED A DIAGNOSIS OF DEMENTIA TO THEMSELVES	YOUNGER PEOPLE (<i>n</i> = 710)	OLDER PEOPLE (<i>n</i> = 2162)	<i>p</i> -VALUE
Because I have the right to know	199 (28.0)	633 (29.3)	0.279
Because I may want to consult or convey wills about the future	534 (75.2)	1292 (59.8)	< 0.001
Because telling the diagnosis would give me the option to receive treatment and rehabilitation	459 (64.6)	1297 (60.0)	0.015
Because I can accept the diagnosis and cope with problems positively	298 (42.0)	1005 (46.5)	0.020

REASONS WHY RESPONDENTS PREFER A DIAGNOSIS OF DEMENTIA NOT TO BE DISCLOSED TO THEMSELVES	YOUNGER PEOPLE (<i>n</i> = 30)	OLDER PEOPLE (<i>n</i> = 138)	<i>p</i> -VALUE
Because you cannot help having dementia when you grow old	17 (56.7)	49 (35.5)	0.004
Because there are no advantages in knowing the diagnosis due to reduced capacity for judgment	15 (50.0)	55 (39.9)	0.206
Because I may be depressed or lose hope by knowing it	21 (70.0)	58 (42.0)	0.275
Because knowing the diagnosis may exacerbate symptoms of dementia	4 (13.3)	30 (21.7)	0.219
Because it may be better untold as there is no effective remedy for reversing the condition	7 (23.3)	53 (38.4)	0.086

Values are *n* (%).

difference between younger and older respondents. However, in answer to a question assuming that a family member of the respondent has dementia, 85.1% (*n* = 749) of younger respondents and 82.5% (*n* = 2181) of older respondents stated that they would prefer that the patient be told his or her diagnosis, while only 4.7% (*n* = 41) of younger participants and 4.0% (*n* = 106) of older participants do not wish the patient to be told. The percentage of respondents who preferred telling the diagnosis of dementia to an affected family member did not differ significantly between younger and older respondents (*p* = 0.293).

The reasons given for preferences regarding the disclosure of a diagnosis of dementia to an affected family member are shown in Table 4; some of these

Table 4. Disclosure of a diagnosis of dementia to an affected family member

REASONS WHY RESPONDENTS PREFER DISCLOSURE OF A DIAGNOSIS OF DEMENTIA TO AN AFFECTED FAMILY MEMBER	YOUNGER	OLDER	p-VALUE
	RESPONDENTS (n = 749)	RESPONDENTS (n = 2252)	
Because he/she has the right to know	211 (28.2)	625 (27.8)	0.430
Because he/she may want to consult or convey wills about the future	612 (81.7)	1592 (70.7)	< 0.001
Because telling the diagnosis would give him/her the option to receive treatment and rehabilitation	535 (71.4)	1342 (59.6)	< 0.001
Because he/she can accept the diagnosis and cope with problems positively	259 (34.6)	849 (37.7)	0.068

REASONS WHY RESPONDENTS PREFER A DIAGNOSIS OF DEMENTIA NOT TO BE DISCLOSED TO AN AFFECTED FAMILY MEMBER	YOUNGER	OLDER	p-VALUE
	RESPONDENTS (N = 41)	RESPONDENTS (N = 113)	
Because he/she cannot help having dementia when he/she grows old	6 (14.6)	31 (27.4)	0.073
Because there are no advantages in knowing the diagnosis due to reduced capacity for judgment	17 (41.5)	40 (35.4)	0.307
Because he/she may be depressed or lose hope by knowing it	27 (65.9)	40 (35.4)	0.001
Because knowing the diagnosis may exacerbate symptoms of dementia	13 (31.7)	30 (26.5)	0.331
Because it may be better untold as there is no effective remedy for reversing the condition	11 (26.8)	53 (46.9)	0.019

Values are n (%).

reasons show a statistically significant difference between younger and older respondents.

Study 2

A total of 1444 (76.6%) family members of care recipients who were using some type of services provided by public long-term care insurance and 441 (21.4%) who did not use any service returned the questionnaire. Of the care recipients, 57.7% of the users of the care service and 53.9% of the

Table 5. Characteristics of responders in Study 2

	TOTAL <i>n</i> = 1885	WITHOUT DEMENTIA <i>n</i> = 1136 (60.2%)	WITH DEMENTIA <i>n</i> = 749 (39.8%)	<i>p</i> -VALUE
Gender (<i>n</i> = 1681, 89.2%)				
Male	617 (36.7)	371 (38.1)	246 (34.8)	0.098
Female	1064 (63.3)	604 (61.9)	460 (65.2)	
Age (years) (<i>n</i> = 1672, 88.7%)				
40–64	45 (2.7)	28 (2.9)	17 (2.4)	< 0.001
65–74	308 (18.4)	232 (23.8)	76 (10.9)	
75–84	713 (42.6)	435 (44.7)	278 (39.8)	
85+	606 (36.2)	278 (28.6)	328 (46.9)	
Residency (<i>n</i> = 1636, 86.8%)				
Live by oneself	118 (7.2)	76 (8.0)	42 (6.1)	< 0.001
Live with spouse	484 (29.6)	315 (33.2)	169 (24.6)	
Others	1034 (63.2)	559 (58.8)	475 (69.2)	
Certified level of care needs (<i>n</i> = 1678, 89.0%)				
Need support	1299 (77.4)	183 (18.7)	46 (6.6)	< 0.001
Level 1	445 (26.5)	319 (32.6)	126 (18.0)	
Level 2	341 (20.3)	193 (19.7)	148 (21.1)	
Level 3	290 (17.3)	119 (12.2)	171 (24.4)	
Level 4	222 (13.2)	8 (10.0)	24 (17.7)	
Level 5	151 (9.0)	66 (6.7)	85 (12.1)	
Duration in need of care (<i>n</i> = 1574, 83.5%)				
< 6 months	713 (45.3)	109 (12.1)	604 (89.3)	< 0.001
6 months–3 years	422 (26.8)	393 (43.8)	29 (4.3)	
> 3 years	439 (27.9)	396 (44.1)	43 (6.4)	

Values are *n* (%).

non-users were female. The percentage of people with dementia was significantly higher in the care service users (43.3%, *n* = 625) than in non-users (28.1%, *n* = 124) (*p* < 0.001). Combining the users and non-users of care service, there were significant differences with regard to age (*p* < 0.001), residency status (*p* < 0.001), certified levels of care needs (*p* < 0.001) and duration in need of care (*p* < 0.001) between the care recipients with and those without dementia (Table 5).

In the case of a diagnosis of dementia, after the exclusion of the respondents who answered “don’t know,” 79.0% (*n* = 650/823) of family members of care recipients without dementia and 58.4% (*n* = 301/515) of family members of care

Table 6. Preferences of disclosure of a diagnosis of dementia

REASONS WHY FAMILY MEMBERS OF A CARE RECIPIENT PREFER DISCLOSURE OF A DIAGNOSIS OF DEMENTIA	WITHOUT DEMENTIA (<i>n</i> = 650)	WITH DEMENTIA (<i>n</i> = 301)
Because he/she has the right to know	208 (32.5)	99 (32.9)
Because he/she may want to consult or convey wills about the future	476 (74.4)	216 (71.8)
Because telling the diagnosis would give him/her the option to receive treatment and rehabilitation	412 (64.4)	175 (58.1)
Because he/she can accept the diagnosis and cope with problems positively	347 (54.2)	156 (51.8)
Because I feel guilty about not telling the truth	136 (21.3)	52 (17.3)
Others	14 (2.2)	14 (4.7)

REASONS WHY FAMILY MEMBERS OF A CARE RECIPIENT PREFER NO DISCLOSURE OF A DIAGNOSIS OF DEMENTIA	WITHOUT DEMENTIA (<i>N</i> = 173)	WITH DEMENTIA (<i>N</i> = 214)
Because he/she cannot help having dementia when he/she grows old	56 (32.4)	119 (55.6)
Because there are no advantages in knowing the diagnosis due to reduced capacity for judgment	87 (50.3)	146 (68.2)
Because he/she may be depressed or lose hope by knowing it	73 (42.2)	48 (22.4)
Because knowing the diagnosis may exacerbate symptoms of dementia	44 (25.4)	42 (19.6)
Because it may be better untold as there is no effective remedy for reversing the condition	58 (33.5)	62 (29.0)
Others	14 (8.1)	14 (6.5)

Values are *n* (%).

recipients with dementia said that they would prefer to tell the afflicted person of the diagnosis, while 21.0% (*n* = 173/823) of the family members of the care recipients without dementia and 41.6% (*n* = 214/515) with dementia preferred not to disclose the diagnosis. There was a significant difference in the percentages of family members who wanted to disclose the diagnosis between those whose care recipient did not have dementia at the time of the questionnaire and those whose care recipient had already been diagnosed with dementia ($p < 0.001$). The reasons for preferring to disclose the diagnosis are shown in Table 6. Male family members of care recipients were significantly more likely to prefer disclosure than female family members (male 73.4%, female 68.6%, $p = 0.048$). The spouses were significantly more likely to want their care recipients to be told the diagnosis than non-spouse caregivers (74.9% vs. 66.6%, respectively, $p = 0.002$). The certified level of long-term care needs had no significant effect on disclosure preference ($p = 0.121$), nor did residence status (living alone or

living with family) ($p = 0.282$). The mean SMQ score of care recipients whose family preferred disclosure (17.6 ± 5.6 S.D.) and that of patients whose family did not prefer disclosure (17.0 ± 5.4 S.D.) did not differ significantly ($t = 1.256$, $p = 0.210$).

Of the patients whose family preferred disclosure of the diagnosis of dementia, after the exclusion of 26 patients who had not confirmed whether they were told the diagnosis or not, 62.5% (172/275) were told the diagnosis by their physicians, and 37.5% (103/275) were not told. Of the patients whose family preferred no disclosure to the patient, 64.3% (128/199) were told the diagnosis by their physicians, and 35.7% (71/199) were not told, after the exclusion of 15 patients who had not confirmed whether they were told the diagnosis or not.

Discussion

The present survey reveals that the residents of an urban area of Japan strongly favor the disclosure of a hypothetical diagnosis of dementia (Study 1), with 85.1% of younger respondents and 82.5% of older respondents expressing positive attitudes toward disclosure to their family members. In 1996, Maguire *et al.* reported that in a memory clinic in Ireland, only 17% of family members wanted disclosure to the patient of a diagnosis of dementia. This disagreement might be attributed to cultural differences. The fact that we found a willingness to disclose a diagnosis of dementia to a family member in this study population is also in contrast to the somewhat negative attitude toward disclosing a diagnosis of cancer in Japan (Elwyn *et al.*, 2002), while the trend is the opposite in western countries (Holroyd *et al.*, 2002), where people might be more sensitive to losing autonomy or human dignity by having dementia. The favorable attitudes toward diagnosis disclosure of dementia in the current study were, however, in agreement with two recent reports from western countries (Holroyd *et al.*, 2002; Pinner and Bouman, 2003) and one from Taiwan (Lin *et al.*, 2005). This may suggest that the increased public awareness of dementia in recent years has affected attitudes toward this issue irrespective of cultural differences. One recent survey performed in an island in Okinawa in Japan reported 29.9% of the caregivers were positive for disclosure (Sugiyama *et al.*, 2003), whereas another survey in an urban area in Japan showed that 71% of caregivers were in favor of disclosure (Yamashita *et al.*, 2002), which is comparable to our current results. These inconsistent results within the same country may be due to the different areas of the surveys. The attitudes in a relatively rural area in Japan might be shifting toward a more positive outlook with an increase in public awareness, but further investigation is necessary.

In the present study, the older people were less favorable to disclosure of their own hypothetical diagnosis, but no difference was found between younger and older respondents in terms of preference of disclosure of a hypothetical diagnosis to an affected family member. Although the reasons why the younger people were more favorable to disclosure of their own hypothetical diagnosis were unclear, they may have more interest in their own condition.

There was a significant difference regarding the disclosure of diagnosis between younger and older respondents in the general population and an even more striking difference between the two caregiver groups whose recipients either had or did not have dementia. Our results show that the older adults were less eager to be told of their own diagnosis and that the caregivers of patients with dementia were also less eager to tell their patients. In general, older people are more likely to have had personal experiences related to dementia than younger people, and caregivers of patients with dementia may have broader experience and knowledge of dementia, which might give them an understanding of the deeper implications of disclosure. With this deeper understanding of dementia based on actual personal experiences, caregivers of patients with dementia may become apaternalistic or reluctant to deal with the potential grief reaction of a family member, and therefore may be reluctant to disclose the diagnosis. Indeed, in a study in the U.S.A., Turnbull *et al.* (2003) found that people who had had personal experience with Alzheimer's disease (AD) were less likely to want to know themselves if they had AD than those without personal experience. In the case of patients with advanced dementia, advance planning including disclosure may have less significance. As expected, we found less favorable attitudes toward the disclosure in caregivers (Study 2) than in non-caregivers (Study 1). Although the difference in study design (questionnaires sent by mail *vs.* interview-based questionnaires) makes a direct comparison difficult, similar reasons to those given above may explain the relative reluctance of the caregivers to disclose the diagnosis of dementia.

A study conducted at a Dutch memory clinic reported that spouses were significantly more likely to want their care recipients to be told the diagnosis than non-spouse caregivers (Dautzenberg *et al.*, 2003), which is consistent with the present results.

Fahy *et al.* (2003) found that lower scores on the Mini-mental State Examination of a care recipient was a predictor of the desire of the caregivers for the diagnosis to remain undisclosed in a study performed at a U.K. clinic. In the present study, however, the mean SMQ score, which reflects the severity of dementia (Koss *et al.*, 1993), was not significantly different between the two different preference groups for disclosure, although it was slightly lower in the group that did not prefer disclosure.