

불안 민감도, 스트레스와 공황장애

Anxiety Sensitivity, Stress and Panic Disorder

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Introduction

- What is anxiety sensitivity?
- Anxiety sensitivity index (ASI)

What is 'anxiety sensitivity'?

- ◆ Fears of anxiety-related sensations
- ◆ Belief that such sensations indicate danger
- ◆ 불안과 관련된 느낌을 두려워함
- ◆ Anxiety sensitivity and other concepts

Reiss and McNally 1985, McNally 1989

- Trait anxiety
- Anticipatory anxiety
- Agoraphobia
- Panic attacks

What is 'anxiety sensitivity'

- ◆ Anxiety sensitivity와 trait anxiety는 서로 다른 체질적인 변인
- ◆ **Trait anxiety**: 일반적으로 스트레스에 두려움으로 반응하는 경향
- ◆ **Anxiety sensitivity**: '불안' 그 자체에 두려움으로 반응하는 경향

Reiss and McNally 1985, McNally 1989

What is 'anxiety sensitivity'

- ◆ Trait anxiety와 마찬가지로 anxiety sensitivity도 개인에 따라 차이가 있다.
- ◆ 우연의 개념인 anticipatory anxiety와 구별: 곧 닥쳐올 것 같은 가능성에 의해 발생하는 걱정의 증가
- ◆ 높은 anxiety sensitivity를 가진 사람은 보통 특정한 신체 감각의 위험성에 대한 믿음을 품는다. 예) heart palpitation

Reiss and McNally 1985, McNally 1989

What is 'anxiety sensitivity'

- ◆ 두려움을 일으키는 상황은 anxiety sensitive 한 사람에서 다른 사람들보다 더욱 회피적이고 혐오스럽다.
- ◆ Pavlov의 조건화에서와 같이, 증가된 anxiety sensitivity의 정도는 trait anxiety를 고려했음에도 두려워하는 대상과 상황의 증가와 관련이 있다.

McNally and Lorenz 1987, Reiss et al. 1986

What is 'anxiety sensitivity'

- ◆ Other two major variants of core ideas that people can fear anxiety symptom
- ◆ **Agoraphobia** as fear of fear rather than a fear of public or open places¹
- ◆ **Panic attacks**: catastrophic misinterpretation of certain bodily sensations as harbingers of imminent disaster²

¹Goldstein and Chambless 1978, ²Clark 1986

Anxiety Sensitivity Index (ASI)

- ◆ ASI: 16 items that tap concerns about anxiety-related sensations on 5 point scale (0 to 4)¹
- ◆ ASI-R: 36 items, 5-point scale²
- ◆ ASP (Anxiety Sensitivity Profile): 60-items³
- ◆ Korean ASI-R⁴

¹Perterson and Reiss 1992, ^{2,3}Taylor and Cox 1998, ⁴Kim et al. 2004

Anxiety sensitivity as a risk for panic

- Etiology of panic disorder
- Phenotypic considerations
- Personality
- Stress
- Biological challenges
- Prospective studies

Etiology of panic disorder

- ◆ Clinical phenomenology from neurobiology and etiology
- ◆ Genetic contribution vs. Non genetic factors
- ◆ Biological vs. psychological

Panic disorder and Generalized anxiety disorder (GAD)

- ◆ Panic attacks, panic disorder and GAD
- ◆ DSM III and ICD-9
- ◆ Concept of DSM IV
- ◆ Difference of Anxiety sensitivity index (ASI) between panic disorder and GAD

McNally 1994, Taylor et al. 1992, Cox et al. 1999

Personality and anxiety sensitivity

- ◆ Little is known about the relationship between personality and anxiety sensitivity
- ◆ ASP with temperament and character
- ◆ ASI and temperament in panic

Van der Does et al 2003,
Saviotti et al 1991

Table 2. Correlations of AS with personality and symptoms

	ASPI total score		From Van der Does et al 2003
	normal sample (n = 472)	patient sample (n = 270)	
Temperament			
Society seeking	-0.02	0.01	
Harm avoidance	0.36**	0.32**	
Reward dependence	0.11	0.04	
Persistence	0.02	0.09	
Character			
Self-strengthening	-0.24**	-0.35**	
Cooperativeness	-0.04	0.01	
Submissiveness	0.09	0.16*	
Symptoms			
Anxiety	0.42**	0.55**	
Depression	0.24**	0.41**	

Unrelated significance: * p < 0.05, ** p < 0.001.

From Saviotti et al 1991

TABLE I
PERSONALITY TEST RESULTS IN RECOVERED PATIENTS WITH PANIC DISORDER ASSOCIATED WITH AGORAPHOBIA (n = 33) AND MATCHED NON-PATIENT CONTROL SUBJECTS (n = 33)

Scale	Patients (mean ± SD)		Controls (mean ± SD)		t (df = 64)
TPO novelty seeking	15.1 ± 5.6	15.7 ± 5.8	0.30		
TPO harm avoidance	24.8 ± 5.0	13.7 ± 5.7	8.36 *		
TPO reward dependence	19.0 ± 6.7	17.0 ± 5.8	1.84		
Anxiety Sensitivity Index	31.5 ± 13.5	11.2 ± 6.4	7.77 *		
Emotional Inhibition Scale	35.0 ± 13.4	32.8 ± 11.0	0.79		

* p < 0.001.

Stress and anxiety sensitivity

- ◆ Corticotropin-releasing factor (CRF) system to stressor
- ◆ Role of amygdala in panic and anxiety state
- ◆ CRF in amygdala and anxiety to stress
- ◆ Effects of anxiety sensitivity on reaction to stressors

Shekhar et al 2005,
Messenger and Shean 1998

Biological challenge and anxiety sensitivity

- ◆ Fearful response to voluntary hyperventilation or inhalation of 5.5% CO₂ pts with a range of anxiety disorder¹
- ◆ Physical Concerns subscale of ASI was related to fearful response²

¹Rapee et al. 1992,
²Zinbarg et al. 2001

Biological challenge and anxiety sensitivity

- ◆ Physical concerns subscale was only psychological variables to predict fearful response to a 20% CO₂ challenge¹
- ◆ ASI predicted panic symptom in response to a 35% CO₂ challenge but Suffocation Fear Scale did not²

¹Zvolensky et al. 2001,
²Shipperd et al. 2001

Biological challenge and anxiety sensitivity

- ◆ ASI predicted panic attack symptom better than did a diagnosis of panic disorder¹
- ◆ CBT reduced the likelihood of panic symptom in response to 35% CO₂ inhalation: high ASI (140이상) 8 times more likely to panic than low ASI (14 미만)²

¹Schmidt and Trakowski 1999,
²Schmidt et al. 1997

Biological challenge and anxiety sensitivity

- ◆ **5% CO2 challenge test in pts with PD**
- Those who panic have significantly higher ASI
- Total ASI score predicted panic symptom
- Physical Concerns and Mental Incapacitation subscales

Rassovsky et al. 2000

Biological challenge and anxiety sensitivity

- ◆ **Hyperventilation challenge and anxiety sensitivity in normal subjects**
- High-ASI: more intense physical sensations and more subjective anxiety
- Spontaneous panic: not associated with anxious response in low-ASI
- ◆ **Caffeine administration**

*Holloway and McNally 1987,
Donnell and McNally 1989*

Biological challenge and anxiety sensitivity

- ◆ Better predictor of response to biological challenge than measures of general trait anxiety
- ◆ Specific tendency to fear bodily sensations > general tendency to respond anxiously to stressors

*Eke and McNally 1996,
Rapee and Medoro 1994,
Sturges et al. 1998*

Biological challenge and anxiety sensitivity

◆ **ASI and variance in cognitive, somatic, affective responses to voluntary hyperventilation**

- Physical Concern subscale was related
- Other subscales were unrelated

Carter et al. 2001

Biological challenge and anxiety sensitivity

◆ **Physiologic arousal ? most distressful for subjects with high anxiety sensitivity**

- Hyperventilation challenge
- Caffeine challenge
- CO2 challenge

Sturges et al. 1998, Sturges and Goetsch 1996, Forsyth et al. 1999

Biological challenge and anxiety sensitivity

◆ **Not all challenge studies have confirmed ASI's predictive power**

- 35% CO2 challenge
- Cholecystokinin-tetrapeptide challenge

Koszycki and Bradwejn 2001, Koszycki et al. 2001

Prospective studies and anxiety sensitivity

- ◆ 대학 졸업생을 high ASI (n=23)과 low ASI (n=25)로 나누어 3년 후에 비교: 4명의 panic attacks 발생 자 중 3명이 high ASI group.
- ◆ ASI가 정상군과 특정 공포증을 가진 군에서 spontaneous panic attack을 예측, trait anxiety는 예측을 못했음.
- ◆ 미국 공군사관 생도들을 대상으로 다른 연구에서 기초군사 훈련 후에 ASI가 spontaneous panic attack을 예측

Maller and Reiss 1992, Ehlers 1995, Schmidt et al. 1997, 1999

Prospective studies and anxiety sensitivity

- ◆ 505명의 대학생을 대상으로 하여 약 10년 후에 178명을 대학 졸업생을 접촉하여 panic attacks, panic disorder, trait anxiety를 평가? ASI가 panic symptom과 panic attack의 발생의 가장 강한 예측인자였는데 trait anxiety를 고려했을 경우에는 그렇지 못했다.

Plehn and Peterson 2002

Etiology of elevated anxiety sensitivity

- Environmental factors
- Genetic factors
- Cognitive perspective

Environmental factors

- Childhood experiences & parental modeling

- Experiencing more anxiety and cold symptom, encouraging sick role behaviour
- Parental concern about anxiety symptom
- Limitations of childhood experience: selective recall, evidence of shared genetic variance

Watt et al. 1998, Stewart et al. 2001

Genetic factors

- ◆ 45% of the variance in ASI score, none was attributable to shared environment: non-shared experience is non-genetic source¹
- ◆ Heritability of ASI scores in women is 49%, 0% in men: remaining variance was attributable to shared environment in men²

Stein et al. 1999, Jang et al. 1999

Cognitive perspective

- ◆ **Tow cognitive perspective on anxiety disorders**
- Identification of distorted beliefs that presumably give rise to pathologic anxiety
- Derangements in information processing that may produce symptoms and signs of anxiety disorders

Clark 1986, Reiss and McNally 1985, McNally 1996, Williams et al. 1997

Cognitive perspective

◆ **Panic patients**

- Interpret ambiguous scenarios as threatening
- Attentional biases favoring threat cues in emotional Stroop task
- Anxiety와 관련된 요소들을 주로 회상
- 증가된 interoceptive acuity: heart rate를 정확히 기록

McNally and Foa 1987, McNally et al. 1990, McNally et al. 1989, Ehlers and Breuer 1992

Cognitive perspective

◆ **Non-clinical subjects with increased ASI**

- Interpretive bias favoring threat
 - Attentional bias for threat
 - Attentional bias for physical threat words
 - Attentional avoidance for social threat words
- Cf. No attentional bias for physical threat words in trait anxiety

McNally 1999, Keogh et al. 2001

Cognitive perspective

- ◆ Memory bias favoring in high ASI subjects
- ◆ Interoceptive acuity: did not depend on cognitive stressors, low ASI group tended to underestimate their HR
- ◆ Information processing: correlates with PD but not part of the risk factor profile

McNally et al. 1999, McCabe 1999, Sturges and Goetsch 1996, Sturges et al. 1998, Stewart et al. 2001

Therapeutic effects on anxiety sensitivity

- ◆ Anxiety sensitivity is dispositional trait-like construct... but stable?
- ◆ Anxiety sensitivity can be changed by CBT, efficacious non-CBT therapy
- ◆ Pharmacologic effects on anxiety sensitivity
- ◆ ASI 는 CBT를 적용하여 약물을 성공적으로 끊을 수 있는 지 여부를 예측가능

McNally and Lorenz 1987, Shear et al. 1994, Otto and Reilly-Harrington 1999, Fava 1996, Mavissakalian et al. 1998, Bruce et al. 1995

Conclusions: Anxiety sensitivity is

- > Fears of anxiety-related sensation
- > Predictive for panic symptoms in response to stressor, esp. biological challenges
- > Elevated anxiety sensitivity may be a risk factor for panic disorder
- > Dispositional variables, but changeable by specific treatments
