[세미나 Ⅰ]

스트레스 측정

박 현 주

분당제생병원

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분당제생병원 정신과
박현주

Stress, definition

"a state of dysharmony, or a threatened homeostasis"

- stimulus model
- response model
- transactional model

Stress reaction

"adaptational responses to reestablish homeostasis"

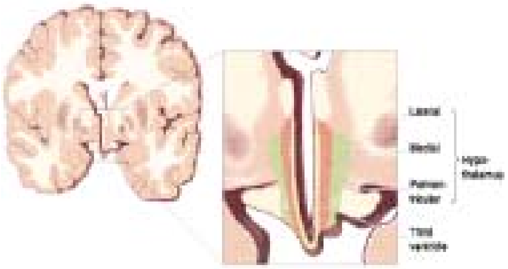
- behavioral and emotional arousal
- inhibited vegetative functions
- energy redirection to the stressed body sites
- increase available vital substrates
- restrained growth, reproduction
- inhibited inflammatory/immune reaction

Stress system, components

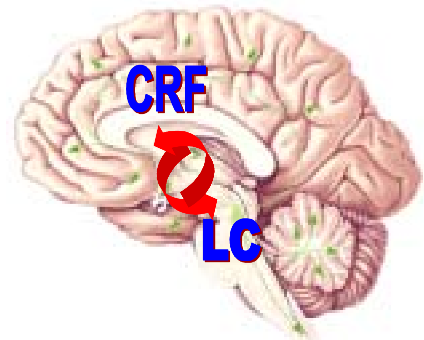
- PVN / CRF*
- LC-NE**/ Sympathetic system

* Paraventricular nucleus of hypothalamus / corticotropin releasing factor
**Locus coeruleus-Norepinephrine

PVN / CRF neuron



CRF/LC-NE reciprocal interaction



Stress system, regulations

- Physiologic / systemic regulation*
- Psychogenic / neural regulation**

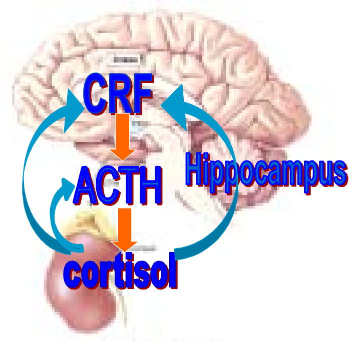
*Negative feed-back control by circulatory hormone
**Positive feed-forward control by neural stimulation

HPA axis regulation

Hypothalamus

Pituitary

Adrenal gland



Stress-sensitive neural regulation

hippocampus amygdala → lateral septum BNST*

lateral septum BNST* → magnocellular CRF neuron

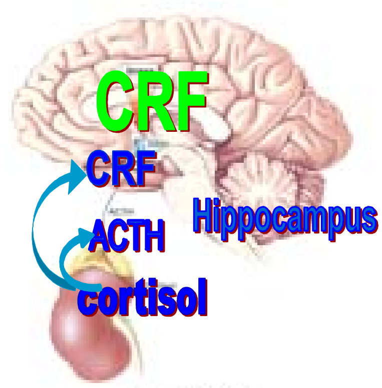
magnocellular CRF neuron → Parvocellular CRF neuron

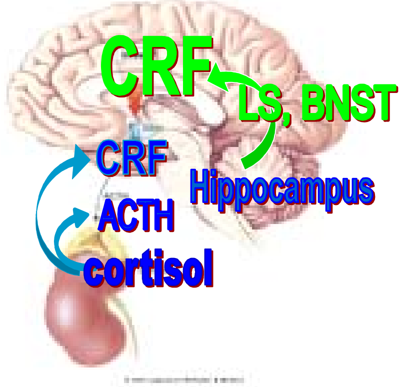
Parvocellular CRF neuron → hippocampus amygdala

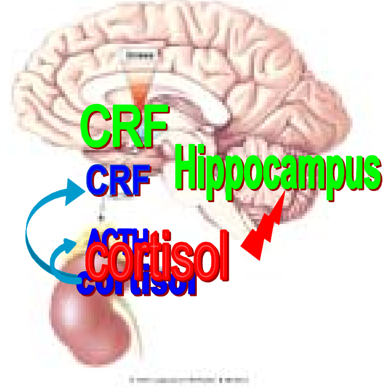
Parvocellular CRF neuron ⇄ A6, A1, A2**

A6, A1, A2** → magnocellular CRF neuron

* bed nucleus of stria terminalis
** brainstem catecholaminergic neuron







Stress assessment

- 스트레스평가
  - Stressor (environment)
    - Holm and Rahe social readjustment rating scale
    - Daily life experience (DLE) checklist
    - Hassle scale
    - Inventory of small life events
    - Daily stress scale
    - Daily stress inventory (DLI)
  - Individual vulnerability
    - State-Trait anxiety inventory
    - Type A behavior pattern
    - Life orientation test
    - Beck depression scale
    - coping response scale
  - Stress reaction
    - Behavioral arousal
    - Autonomic arousal
    - Vegetative function

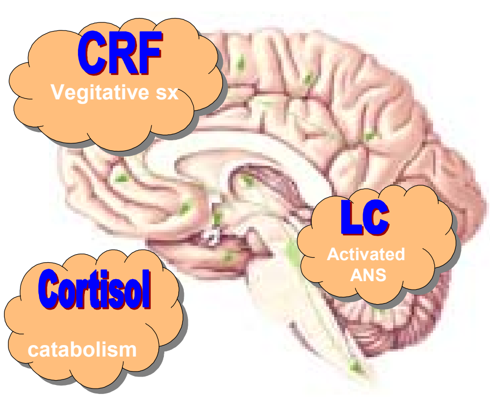
Major life events (life change events)

- Holmes and Rahe readjustment scale (1967): SRE, SRRS
- Sarason et al. (1978): LES
- Dohrenwend et al. (1978): PERI
- Brown and Harris (1978, 1989): SEDS

Minor life events

- daily life experience (DLE) checklist
- hassle scale
- Inventory of small life events
- daily stress scale
- daily stress inventory (DSI)

Chronic strains



Stress, biological markers

- endocrine: cortisol, ACTH, ADH, DST
- metabolic: gluconeogenesis, insuline resistance,
  osteoporosis
  lipolysis, proteolysis
  early menarche, early menopose
  growth retardation
- autonomic nervous system :
  HRV, skin conduction velocity
  VMA, HVA, MHPG
- immune function : Natural killer T-lymphocyte
- target tissue changes: adrenal gland, hippocampus