妊娠中の不安と自律神経活動との関連

Anxiety during pregnancy and autonomic nervous system activity:

A longitudinal observational and cross-sectional study

要旨

目的: 妊娠中の自律神経活動の縦断的推移および妊娠中の不安と自律神経活動との関連を明らかにすることを目的とした。

方法: 対象者は単胎妊娠であり、正常な妊娠経過である日本人妊婦とした(n=65)。妊娠20週時、妊娠30週時、妊娠36週時に、妊婦の自律神経活動および自己記入式質問紙による不安の程度を測定した。自律神経活動の指標として、心拍変動の高周波数(HF)領域および超低周波数(VLF)領域を測定した。不安の程度を把握するため、State-Trait Anxiety Inventory (STAI-JYZ)を行った。特性不安尺度にて45点以上の妊婦を特性不安あり群、44点以下の妊婦を特性不安なし群とした。状態不安尺度においても同様に、45点以上の妊婦を状態不安あり群、44点以下の妊婦を状態不安なし群とした。

結果: 同一妊婦の縦断的観察において、妊娠20週から妊娠36週へ週数が進むほど、妊婦のVLFは有意に亢進する傾向がみられ(傾向性p=0.002)、HFは有意に減弱する傾向がみられた(傾向性p<0.001)。特性不安なし群と比較して、特性不安あり群における妊娠20週VLFが有意に減弱し(p=0.033) 、妊娠30週および妊娠36週HFが有意に減弱していた(妊娠30週p=0.015，妊娠36週p=0.044)。妊娠20週から妊娠36週のVLF増加率は、特性不

安あり群において高く、妊娠20週状態不安あり群においても、同様の傾向がみられた。

結論: 不安を有する妊婦は心拍変動の減少を示した。妊娠第2期の不安は、交感神経活動亢進状態を促進する可能性が示唆された。

Keywords:

不安; 自律神経系; 心拍変動; 縦断的研究; 観察研究; 妊娠

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Abstract

Objectives: To assess the longitudinal change in autonomic nervous system (ANS) activity during pregnancy and the association between anxiety during pregnancy and ANS activity.

Methods: Pregnant Japanese women with a singleton fetus and normal pregnancy were recruited (n=65). ANS activity and anxiety were measured using a self-rating questionnaire at approximately 20, 30, and 36 weeks of gestation. Very low (VLF) and high (HF) frequency bands of heart rate variability spectrums were used. Anxiety was assessed using the Japanese version of the State-Trait Anxiety Inventory. A score of 45 or more on trait-anxiety and the other represent the trait-anxiety group and the non-trait-anxiety group, respectively. The state-anxiety group and the non-state-anxiety group were defined in the same manner.

Results: Longitudinal observation of individual pregnant women indicated the significant increasing trend ($p = 0.002$) of VLF power and the significant decreasing trend ($p < 0.001$) of HF power during 20 to 36 gestation weeks. Compared with the non-trait-anxiety group, the trait-anxiety group had significantly lower VLF values at 20

gestational weeks ($p = 0.033$) and had significantly lower HF values at 30 and 36 gestational weeks ($p = 0.015$ and $p = 0.044$, respectively). The increasing rate of VLF from 20 to 36 gestational weeks was higher among the trait-anxiety group. The same associations were observed between the state-anxiety and non-state-anxiety groups at 20 gestational weeks.

Conclusions: Anxiety during pregnancy decreased heart rate variability. Anxiety in second trimester pregnancy promoted a subsequent increase in sympathetic activity.

Keywords:

anxiety; autonomic nervous system; heart rate variability; longitudinal study; observational study; pregnancy