

FUNCTIONAL BRAIN IMAGING IN SUICIDAL PATIENTS

Kees Van Heeringen

Universiteit van Gent, Unit for Suicide Research, Ghent, Belgium

SUMMARY

A systematic review of comparative neuroimaging studies of suicidal brains was carried out. Changes in the structure and functions of the brain in association with suicidal behaviour are mainly found in the orbitofrontal and dorsolateral parts of the prefrontal cortex. These changes are related to neuropsychological disturbances in decision-making, problem solving and fluency.

Key words: suicide - functional brain imaging

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Introduction

Evidence of an association between a vulnerability to suicidal behaviour and neurobiological abnormalities is accumulating. Postmortem studies have indeed clearly demonstrated structural and biochemical changes in the brains of suicide victims. More recently, functional brain imaging techniques have become available to study changes in brain functions and their correlations with neuropsychological and clinical characteristics in vivo.

Material and method

Systematic review of comparative neuroimaging studies of suicidal brains.

Results

Changes in the structure and functions of the brain in association with suicidal behaviour are mainly found in the orbitofrontal and dorsolateral parts of the prefrontal cortex. Correlational studies suggest that these changes relate to (possibly serotonin-mediated) neuropsychological disturbances in decision-making, problem solving and fluency, respectively.

Conclusions

As a consequence, the findings from these studies suggest that suicidal behaviour is associated with (1) a particular sensitivity to social disapproval (possibly leading to increased levels of emotional pain) (2) choosing options with high immediate reward (e.g. alleviation of emotional pain) and (3) a reduced ability to generate positive future events (leading to feelings of hopelessness). Further study is needed to elaborate these findings and to investigate to what extent changes in the structure and function of suicidal brains are amenable to psychological and/or biological interventions.

References

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Correspondence:

Kees Van Heeringen

Universiteit van Gent, Unit for Suicide Research

Ghent, Belgium

E-mail: cornelis.vanheeringen@UGent.be