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Food Intolerance in Patients with Depression

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Abstract

Medication is commonly prescribed for the treatment of depression, but some patients have difficulty finding a medication that is both effective and tolerable while others prefer to avoid medications all together. It has been suggested that dietary modification may reduce the depressive symptoms. As lifestyle changes may be difficult to maintain long term, determining specific foods to avoid for individual patients may improve adherence.

A meta-analysis of 10 articles was performed. Articles were found using the electronic search databases PubMed and PsychInfo.

Many studies found correlations between biomarkers and the prediction, diagnosis, or treatment of depression, though no study suggested specific guidelines for these purposes.

Connections between food intolerance and depression were observed, but not enough data was found to evaluate whether the avoidance of food intolerances reduces depression symptoms when compared to anti-depressant medications.

Introduction

Depression is the leading cause of disability worldwide (Belliveau et al., 2022).

Risk factors for depressive disorders are both environmental and genetic (American Psychiatric Association, 2013).

Low grade inflammation has been associated with depression (Kofod et al., 2021).

Certain diets have been linked to chronic diseases due to inflammatory properties (Belliveau et al., 2022).

Food intolerance is an adverse reaction which may or may not be immune related and may cause inflammation that contributes to depression.

Statement of the Problem

The incidence and severity of medication side effects cannot be predicted.

Antidepressant medication provides symptomatic control, but patients may return to baseline after discontinuation.

Avoiding all potentially inflammatory foods would result in a highly restrictive diet.

Research Question

In patients with depression, does avoidance of food intolerances reduce symptoms when compared to anti-depressant medication?

Literature Review

Immunoglobulin levels in patients with depression

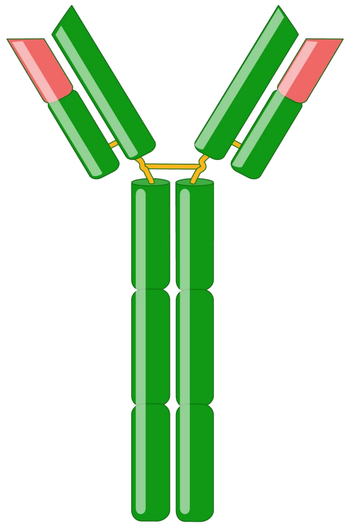
- IgG was detected in 64% of patients with depression, in 46% of patients with irritable bowel syndrome, and 19% of the healthy controls (Karakula-Juchnowiz et al., 2018).
- Adolescents with depression had a higher levels of IgE and IgG when compared to their peers ($p < 0.001$, Toa et al.,2019).
- Adolescents with food hypersensitivity reported more problems than those without regarding anxiety/depression ($p = 0.007$), pain ($p < 0.001$), and usual activities ($p = 0.04$, Jonsson et al., 2021).

Anti-inflammatory properties of Antidepressants

- TNF, IL-6, and CRP were significantly elevated in patients that had undergone higher numbers of medication trials for treatment of a single depressive episode (Haroon et al., 2018).
- High baseline CRP correlated with decreased responsiveness to anti-depressant medications ($r = -0.402$, $p = 0.025$, Navinés et al., 2022).

Anti-inflammatory diets in patients with depression

- Regular dietary consumption of foods with higher inflammatory indices correlates with higher PHQ-9 scores ($p < 0.0001$, Belliveau et al., 2022)
- Two case studies documented reduced depressive symptoms after reduction of inflammatory foods determined by elimination and reintroduction (Aucoin & Bhardwaj, 2019 and Parker & Watkins, 2002).



Discussion

Impact of inflammatory markers on diagnosis or treatment

- Inflammatory markers correlate with clinical symptoms though the impact on diagnosis or treatment is less clear
- High baseline CRP correlated with reduced daily function ($r = -0.487$, $p = 0.006$) and lower responsiveness to anti-depressant medications (Navinés et al., 2022). Post-treatment CRP levels were lower in patients who had been on only one anti-depressant medication when compared to those that had tried more (Haroon et al., 2018).
- Post-treatment TNF levels were higher in patients who had tried at least 3 anti-depressant medications when compared to those that tried only one medication ($p = 0.006$) or had not tried medication therapy ($p = 0.005$) (Haroon et al., 2018).

Impact of immunoglobulin level on diagnosis or treatment

- Both type I (IgE-mediated) and type III (IgG-mediated) hypersensitivity reactions occur more frequently in patients with depression.
- Adolescents with depression had significantly higher concentrations of IgE than their peers ($p < 0.001$, Toa et al., 2019) but presence of IgE did not affect anxiety or depression scores ($p = 0.65$, Jonsson et al., 2021).
- In one study, 89.67% of adolescents with depression tested positive for at least one food-specific IgG compared to only 13.04% of their peers ($p < 0.001$, Toa et al., 2019). In a study evaluating an adult population, IgG against tested food antigens was detected in 46% of patients with MDD compared to 19% of healthy participants ($p = 0.004$, Karakula-Juchnowicz et al., 2018).

Viability of dietary modification as treatment for depression

- Study participants consuming a higher volume of inflammatory foods had higher PHQ-9 scores ($p < 0.0001$, Belliveau et al., 2022).
- In one case study, hypersensitivities determined subjectively by use of an illimitation and reintroduction diet were subsequently confirmed with immunoglobulin testing (Aucoin and Bhardwaj, 2019).

Application for Clinical Practice

Many patients with depression trial a variety of anti-depressant medications until finding one that is effective and tolerable.

Patients who have failed multiple medications and those who are strongly opposed to taking medications should be informed of the possibility of diet control.

Though testing of food-specific immunoglobulins is not yet readily available, information on elimination and reintroduction of food is.

Diet modification should be an option for patients not requiring acute medical intervention for depressive symptoms.

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