EFFECTS OF SATURATED FATTY ACIDS ON CIRCULATING MARKERS OF INFLAMMATION AND ADIPOKINES: A SYSTEMATIC REVIEW

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BACKGROUND

No systematic evidence has been put forward on the relation of saturated fatty acids (SFA) with inflammatory markers and adipokines.

OBJECTIVE

To systematically review and summarize evidence regarding the association of SFA with inflammatory markers and adipokines.

METHODS

Two electronic searches were conducted (up to September 2010 through Medline, Scopus, Web of Science and Science Direct, and from September 2010 to August 2011 through Medline). Original studies written in Portuguese, English, Spanish or French addressing SFA effects (not dietary sources or SFA-rich diets) on inflammatory markers or adipokines in adult populations and providing adjusted estimates were considered eligible.

RESULTS

Fifteen studies, published from 1995 to 2010 (sample size ranging from 54 to 4900), were included. Most studies were cross-sectional; only 3 studies used a prospective design. Twelve studies assessed total SFA and 3 studies their subtypes. Dietary assessments of SFA were used in 11 studies and included 24-hour recalls, food frequency questionnaires, food records and dietary histories; the other 4 studies measured fatty acids in blood samples. Significant positive associations were observed between SFA and soluble intercellular adhesion molecule-1 and interleukin-6 while no significant associations were observed with E-selectin, tumour necrosis factor-alpha, granulocyte-macrophage colony-stimulating factor, fibrinogen and adiponectin. For high sensitivity C-reactive protein, significant positive associations were observed in 2 studies whereas 3 studies reported no significant associations. One study reported a significant inverse association of SFA with leptin, whereas the other 3 found no significant associations.

CONCLUSIONS

This systematic review suggests that SFA do not seem to be associated with inflammatory markers and adipokines, although a clear picture has not emerged.