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Comparing the Impact of Two Omega-3 Products on Hemoglobin A1c Values.

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TITLE:

Comparing the impact of two omega-3 fatty acid products on hemoglobin A1c values.

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PURPOSE: Elevated blood hemoglobin A1c values (>5.7%) are associated with increased incidence of diabetes and tend to correspond to worsening cholesterol parameters in patients' lipid profiles. Some studies suggest certain statins, the most commonly used class of medications to treat hyperlipidemia, may significantly increase hemoglobin A1c values. Literature is controversial as to whether supplementation with omega-3 fatty acid products is also associated with increased hemoglobin A1c values. Therefore, the purpose of this study was to assess the impact of an over-the-counter (krill oil) and a prescription omega-3 fatty acid preparation on hemoglobin A1c values.

METHODS: A total of 47 patients in a private cardiologist's clinic had two blood samples drawn to evaluate hemoglobin A1c levels on different dates within a one year period; these dates represent the time before and after supplementation with an over-the-counter (n=16) or commercial (n=31) omega-3 fatty acid preparation. All patients had hemoglobin A1c values determined at least one month after the first value was drawn. Approximately 51% of patients (n=24) had a previous diabetes diagnosis and 72% were taking statins (n=34) at the time both laboratory samples were drawn. Data were then analyzed retrospectively via General Linear Model-Repeated Measures using a full factorial model involving time, whether patients had a previous diabetes diagnosis, and impact of each fatty acid product on hemoglobin A1c levels. A second model investigated interactions of time, diabetes diagnosis, and statin use on hemoglobin A1c levels.

RESULTS: As expected, patients diagnosed with diabetes had higher ($P<0.001$) hemoglobin A1c values as compared to those without diabetes (7.6 versus 5.7%). A numerical trend ($P=0.11$) for a two-way interaction between time and fatty acid product was observed, with patients taking krill oil having a larger increase in hemoglobin A1c values after supplementation (7.0 versus 6.6%) as compared to those taking the prescription product (6.5 versus 6.5%). Similarly, this increase in hemoglobin A1c values was most evident (three-way interaction; $P=0.23$) in diabetic patients after taking krill oil (8.0 versus 7.3%) compared to those taking the prescription product (7.4 versus 7.5%). Results from the second statistical model suggest patients taking statins compared to those not taking statins had numerically higher hemoglobin A1c values (6.8 versus 6.1%) ($P=0.174$), regardless of which type of omega-3 fatty acid product they were taking. However, no interactions were found when evaluating hemoglobin A1c values in patients taking statins with time after fatty acid supplementation or diabetes diagnosis.

CONCLUSION: The over-the-counter omega-3 product showed a trend toward increasing hemoglobin A1c values, including those patients with a previous history of diabetes. Patients taking statins had numerically higher hemoglobin A1c vales, which is consistent with previously published literature. Larger studies are warranted to confirm this data, especially in those with a history of diabetes taking krill oil.