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Case Report

Does the Use of Fish Oil Supplements Prolong Benign Pediatric Epistaxis?: A Case Report

Balık Yağı Takviyeleri Kullanımı Benign Pediyatrik Epistaksisi Uzatır Mı?: Bir Olgu

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Abstract

Fish oil is a widely used reinforcer for children by families nowadays due to its many structural and functional benefits. Although its positive effects on children's mental development have been demonstrated widespread in some studies, there is no clear view about the necessity of its use in childhood. Besides the side effects of this promising supplement have not been fully illuminated, its use may cause susceptibility to bleeding, as mentioned in many different literature studies. The present case is a remarkable presentation of a prolonged benign pediatric epistaxis caused by fish oil, often preferred among supplements and used for children today. The patient's condition improved significantly following the discontinuation of the reinforcement (fish oil). We submit our case to emphasize that the use of such products should also be subject to a standard assessment, based on our clinical experience. We suggest that only physicians decide to initiate fish oil in patients who needed it; more importantly, we also consider that they must monitor them closely as it can have side effects.

Keywords: Fish oil, benign pediatric epistaxis, bleeding, omega fatty acids

Öz

Balık yağının yapısal ve fonksiyonel birçok faydasından dolayı günümüzde ailelerce çocuklara yaygın olarak kullandırılmaktadır. Balık yağının çocuklarda zihinsel gelişim üzerinde olumlu etkisi bazı çalışmalarda gösterilmiş olsa da çocukluk çağında kullanımının gerekliliği konusunda net bir görüş yoktur. Yan etkileri yeterince aydınlatılmamış olup bazı çalışmalarda balık yağı kullanımının kanamaya yatkınlığa neden olduğu gösterilmiştir.
Bu olgu, günümüzde takviyeler arasında çocuklar için sıklıkla tercih edilen balık yağının neden olduğu uzamış benign pediatrik epistaksisin dikkat çekici bir sunumudur. Takviyenin (balık yağı) kesilmesinin ardından hastanın durumu önemli ölçüde düzelmiştir. Bu deneyimimizden yola çıkarak bu tür ürünlerin de kullanımının standart bir değerlendirmeye tabi olması gerektiğine, yan etkileri de olabileceğinden dolayı başlanmasına hekimlerce karar verilmesi ve ayrıca yan etkileri olabileceğinden başalanan hastalarda yakından izlem gerektiğini düşünüyoruz.

Anahtar Kelimeler : Balık yağı, bening pediatrik epistaksis, kanama, omega yağ asitleri

INTRODUCTION

Fish oil has become one of the most commonly used food supplements for children in recent years due to its many structural and functional benefits.

Because fatty acids like linoleic acid (LA) and -α-Linolenic acid (ALA) do not exist in the human body, they must be supplemented with a diet. At the same time, LA can be found in sunflower and maize seeds, ALA seafood, and oilseeds like flax and canola. To generate omega fatty acids such as Eicosapentaenoic acid (EPA), Docosapentaenoic acid (DPA), and Docosahexaenoic acid (DHA), -linolenic acid and LA must be provided in the diet. Omega-3 and omega-6 are the most vital polyunsaturated fatty acids for the human body, and they cannot be manufactured in the body. They are the precursors of many critical biological events. Omega-3, which is found in fish oil and is involved in arachidonic acid metabolism, has been demonstrated in multiple studies to have beneficial benefits on the circulatory system, brain and retina, memory, and sperm production. These fatty acids also play a role in the digestive system,

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inflammation, pain, edema, allergic reactions, and blood coagulation by producing prostaglandins, which regulate body temperature and blood pressure, produce certain hormones, and play a role in the digestive system, inflammation, pain, edema, allergic reactions, and blood coagulation (1). Fish oil preparations for children are available under a variety of brand names that are known for their impact on brain development.

Although anticoagulant effects of fish oil have been documented in the literature on occasion, there are few investigations on uncontrollable bleeding. The effects of fish oil use and this reinforcement discontinuance on epistaxis duration in a kid patient we followed up in our institution were investigated in this research.

CASE REPORT

A 7-year-old child was admitted to our outpatient clinic with a history of recurrent benign pediatric epistaxis and uncontrollable nosebleeds at night. There was no medical history and no hereditary familial disease in the patient. The height and weight percentiles were 50 percentiles at 120cm and 23kg, respectively. There was no history of surgery. The mother stated that her son's epistaxis has been going on for three months and that he was not taking any medication other than fish oil supplements with 740mg EPA and 470mg DHA. Except for nasal hyperemia and crusting, there were no abnormal findings on physical examination. Hb 13.7 g/dL, Hct 38.4%, MCV 83.7fL, MCH 29.8 pg, MCHC 35.7g/dL, RBC 4.59x10^6/µL, WBC 7.3x10^3/µL, PLT 377x10^3/µL, MPV 8.2fL, were found in laboratory tests. After getting informed consent from the patient's family, we analyzed the bleeding time at our clinic. The Duke Method was used to calculate the bleeding time. The patient's fingertip was cleaned with alcohol cotton and allowed to dry. The stopwatch was started shortly after the fingertip was punctured. Filter paper was used to gently suck blood every 30 seconds. Finally, when the bleeding ceased, the stopwatch was stopped simultaneously, and the bleeding time was recorded. In the first measurement, the bleeding time was found to be 7 minutes and 35 seconds. As a result, fish oil was removed from the diet. This parameter was discovered to diminish to 3 minutes and 40 seconds when the patient was re-evaluated for the bleeding time at the follow-up appointment one month later. The patient was compliant and stable during and after both applications. In addition, the mother noted that patient had not experienced as much blood during nosebleeds as he had during the first measurement.

DISCUSSION

Idiopathic nosebleeds are the most prevalent cause of nosebleeds in children, with 60% of children experiencing at least one epistaxis before the age of ten. Furthermore, only 10% of children with epistaxis seek medical help; (2); it is more common in males, and the average age of onset is 7.3-8.8 years (3,4).

Fish oil supplements are frequently utilized for health reasons; in fact, multiple studies suggest that they are the most widely used supplemental drug of all (5). While the daily omega-3 requirement is 1g, dosages of 2-4g have been recommended for people who are at risk of cardiovascular disease. Between the ages of 6 months and 2 years, 100mg DHA is advised, and between the ages of 2 and 18 years, 250mg (DHA+EPA) (1-2 fish meals per week) is indicated (6). More research is needed to determine the effects of omega-3 fatty acids on neurodevelopment and the optimal levels to be taken, according to Ryan et al. They reviewed human studies on the subject and concluded that more studies are necessary to determine the effects of omega-3 fatty acids on neurodevelopment and the optimal levels to be taken (7). The Australian National Heart Foundation endorsed omega-3 consumption to prevent heart disease and stroke, based on the findings of the literature evaluation. Nestel et al., on the other hand, found that taking more than the recommended daily dose of 1g provided no additional advantages or negative effects (8). Omega-3 fatty acids have been shown in studies to have physiological benefits on prostaglandins, platelets, lipids, and thrombi (5) as well as several cardiovascular benefits, such as anti-inflammatory effects and blood pressure reduction (9).

Although there are many research on the effect of medications on the incidence of bleeding in the literature, there is little information on the effect of complimentary drugs. Omega-3 fatty acids present in fish oil supplements, such as EPA and DHA, impact the coagulation profile in two ways. In the phospholipid membrane of platelets, EPA and DHA replace arachidonic acid (AA), an omega-6 fatty acid. Because AA is insufficient for activation, thromboxane A2 levels drop and platelet aggregation ensues (10). A decrease in platelet aggregation increases the tendency to bleed. The second and less accepted action mechanism of omega-3 fatty acids in the coagulation profile is reducing vitamin K independent coagulation factor V, vitamin K dependent factor VII, X, IX, and II (Prothrombin), and fibrinogen (11).

We adopted the Duke Method in our circumstance since it was the easiest to use for children and could be utilized if no other bleeding diathesis tests were available (12,13). As in our case, when the bleeding time exceeds 5 minutes, it is considered as coagulopathy (14); it also returned to normal ten days after the fish oil was discontinued. The antiplatelet activity of fish oil has been associated with longer bleeding times in previous studies (15); however this impact of fish oil has been deemed ineffective and physiologically emphasized only in cases of traumatic vascular injury (16). In following investigations, several points of view have been considered. In contrast, no statistically significant effect of fish oil on bleeding time has been identified in literature studies with patients using warfarin. In a review where the findings of the studies conducted between 1980-2017 were evaluated, fish oil has been reported not to be a clinically significant

cause of coagulopathy and to cause clinically significant bleeding in surgical patients using antiplatelet therapies, factor Xa inhibitors, or warfarin (17).

Larson et al. observed that a daily dose of 3 g of fish oil was required to induce coagulopathy, with no increase in effect observed at doses beyond 6 g. (18). Although fish oil supplements are more popular among youngsters, adults prefer them as well, owing to their beneficial benefits on the cardiovascular system (19). Many studies have shown that the omega-3 content of commercial forms of fish oil supplements can vary and deviate from the prescribed quantity, necessitating the discontinuation of these supplements at least 5-7 days before to surgery (20). A sufficiently long time was allowed for this effect of fish oil to wear off, as its mechanism of action is thought to result in a quantitative reduction in platelet aggregation. One week later, the patient in our study was contacted for a check-up, but patient requested a re-examination a month later, and the procedure applied 1st month control.

Because fish oils are considered a nutritional supplement, their substance differs significantly from that of pharmaceutical medications, and little is known about their negative effects. High blood sugar, diarrhea, gastric reflux, bleeding, low blood pressure, and sleeplessness are some of the side effects described (21,22).

CONCLUSION

Primary care clinics are facilities counseling on all health issues, including current health approaches and food supplements. Every family physician may need to provide information about these supplements and their side effects depending on their environment where it is located and the structure of the region they serve. A family physician should manage the use of supplements in a holistic and comprehensive approach.

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REFERENCES

1. Leaf A, Weber PC. Cardiovascular Effects of n-3 Fatty Acids. N Engl J Med. 1988;318:549–57.
2. Brown NJ, Berkowitz RG. Epistaxis in healthy children requiring hospital admission. Int J Pediatr Otorhinolaryngol. 2004;68:1181-4.
3. Damrose JF, Maddalazzo J. Pediatric epistaxis. Laryngoscope. 2006;116:387–93.
4. Patel N, Maddalozzo J, Billings KR. An update on management of pediatric epistaxis. Int J Pediatr Otorhinolaryngol. 2014;78:1400-4.
5. Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. Natl Health Stat Report. 2008;10:1–23.
6. ESPGHAN Committee on Nutrition, Agostoni C, Braegger C, Decsi T. Supplementation of N-3 LCPUFA to the diet of children older than 2 years: a commentary by the ESPGHAN Committee on Nutrition. J Pediatr Gastroenterol Nutr. 2011;53:2-10.
7. Ryan AS, Astwood JD, Gautier S, et al. Effects of long-chain polyun-saturated fatty acid supplementation on neurodevel-opment in childhood: A review of human studies. Pos-tagland Leukot Essent Fatty Acids. 2010;82:305–14.
8. Nestel P, Clifton P, Colquhoun D, et al. Indications for omega-3 long chain polyunsaturated fatty acid in the prevention and treatment of cardiovascular disease. Heart Lung Circ. 2015;24:769–79.
9. Fetterman JW, Jr Zdanowicz MM. Therapeutic potential of n-3 polyunsaturated fatty acids in disease. Am J Health Syst Pharm. 2009;66:1169–79.
10. Miller PE, Van Elswyk M, Alexander DD. Long-chain omega-3 fatty acids eicosapentaenoic acid and docosahexaenoic acid and blood pressure: A meta-analysis of randomized controlled trials. Am J Hypertens. 2014;27:885–96.
11. Flaten H, Høstmark A, Kierulf P, et al. Fish-oil concentrate: Effects on variables related to cardiovascular disease. Am J Clin Nutr. 1990;52:300–6.
12. Paniccia R, Priora R, Liotta AA, Abbate R. Platelet function tests: a comparative review. Vasc Health Risk Manag. 2015;11:133-48.
13. Hamblin TJ. What about the bleeding time?. Br Med J (Clin Res Ed). 1985;13;29:91.
14. Russeau AP, Vall H, Manna B. Bleeding Time. [Updated 2020 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK537233/
15. Saynor R, Verel D. Effect of a fish oil on blood lipids and coagulation. Thromb Haemostas. 1981;46:65.
16. Larson MK, Tormoen GW, Weaver LJ, et al. Exogenous modification of platelet membranes with the omega-3 fatty acids EPA and DHA reduces platelet procoagulant activity and thrombus formation. Am J Physiol Cell Physiol. 2013;304:273-9.
17. Pryce R, Bernaitis N, Davey AK, et al. The use of fish oil with warfarin does not significantly affect either the international normalised ratio or incidence of adverse events in patients with atrial fibrillation and deep vein thrombosis: a retrospective study. Nutrients. 2016;8:578.
18. Larson MK, Shearer GC, Ashmore JH. et al. Omega-3 fatty acids modulate collagen signaling in human platelets. Prostaglandins Leuko Essent Fatty Acids. 2011;84:93-8.
19. Carr JA. Role of fish oil in post-cardiotomybleeding: a summary of the basic scienceand clinical trials. Ann Thorac Surg. 2018;105:1563-7.
20. Meredith DS, Kepler CK, Huang RC, et al. The effect of omega-3 fatty-acid supplements on perioperative bleeding following posterior spinal arthrodesis. Eur Spine J. 2012;21:2659-63.
21. 8 Little-Known Side Effects of Too Much Fish Oil. https://www.healthline.com/nutrition/fish-oil-side-effects Access date 18.08.2022
22. TEMD dyslipidemia diagnosis and treatment guideline. Turkish Society of Endocrinology and Metabolism. Ankara: BAYT Scientific Researches Press and Publication Ltd. Sti; 2; 2018.