PENGARUH PROTEIN HIDROLISAT IKAN TERHADAP KADAR IGF-1, IGFBP-3, GH, BERAT DAN PANJANG BADAN TIKUS *SPRAGUE DAWLEY* MALNUTRISI

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ABSTRAK

Latar Belakang

Prevalensi stunting di Indonesia mencapai 30,8%. Salah satu penyebabnya asupan protein dan asam amino dari makanan pendamping ASI (MP-ASI). Ikan kuniran yang melimpah dapat dibuat MP-ASI protein hidrolisat. Tujuan penelitian mengetahui pengaruh protein hidrolisat ikan kuniran (PHI) terhadap kadar IGF-1, IGFBP-3, GH dan tingkat pertumbuhan tikus *Sprague Dawley* malnutrisi.

Metode Penelitian

Penelitian *true experimental with pre and post test randomized control group design* dengan kelompok perlakuan (P1) MP-ASI protein hidrolisat ikan kuniran, (P2) MP-ASI protein non-dhidrolisat ikan kuniran, kelompok kontrol negatif (K1) dan kelompok kontrol positif (K2), pada 26 tikus *Sprague Dawley* jantan. MP-ASI PHI diberikan secara peroral selama 14 hari. Kadar IGF-1, IGFBP-3 GH, sebelum dan setelah intervensi mengggunakan metode ELISA. Berat badan (BB) sebelum dan setelah intervensi diukur menggunakan timbangan *Mettler Toledo* ketelitian 0,01 gram. Panjang badan (PB) sebelum dan setelah intervensi, diukur menggunakan jangka sorong dengan ketelitian 0,01 cm. Analisis data menggunakan uji paired t-test, Wilcoxon sign rank test, *Kruskal wallis* dengan uji lanjut *Mann whitney U test.*

Hasil Penelitian

Ada peningkatan signifikan kadar IGF-1, IGFBP-3, GH, pada kedua kelompok perlakuan, sedangkan kedua kelompok kontrol terjadi penurunan. BB dan PB meningkat pada semua kelompok. Delta kadar IGFBP-3 dan PB, kelompok protein hidrolisat, signifikan lebih tinggi dibandingkan kelompok protein non hidrolisat, sedangkan delta IGF-1, GH, BB tidak berbeda pada kedua kelompok.

Simpulan

Ada pengaruh pemberian protein hidrolisat ikan kuniran terhadap kenaikan kadar IGF-1, IGFBP-3 dan GH pada tikus Sprague Dawley.

Kata Kunci: Protein, hidrolisat, IGF-1, GFBP-3, GH, berat badan. Tinggi badan

EFFECT OF FISH HYDROLYSATE PROTEIN ON IGFBP-3, IGF-1, GH AND GROWTH LEVEL OF MALNOURISHED SPRAGUE DAWLEY RATS

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ABSTRACT

Background

The prevalence of stunting in Indonesia is 30.8%. One of the causes of this condition is the intake of protein and amino acids from complementary foods (CF). Abundant kuniran fish can be made complementary food with hydrolyzed protein. The purpose of this study was to determine the effect of CF fish protein hydrolysate on the levels of IGF-1, IGFBP-3, GH and growth rate of malnourished Sprague Dawley rats.

Methods

This was true experimental study with pre and post-test randomized control group design with treatment group (P1) CF kuniran fish hydrolyzed protein, (P2) CF kuniran fish non-dhydrolysate protein, negative control group (K1) and positive control group (K2), in 26 male Sprague Dawley rats. CF kuniran fish hydrolyzed protein was given peroral feeding for 14 days. GH, IGF-1, IGFBP-3 levels before and after intervention used the ELISA method. Body weight (BW) before and after the intervention was measured using a Mettler Toledo scale with an accuracy of 0.01 gram. Body length (BL) before and after the intervention was measured using a caliper with an accuracy of 0.01 cm. Data analysis used paired t-test, Wilcoxon signs rank test Kruskal Wallis with further Mann Whitney U test.

Results

There was a significant increase in IGF-1, IGFBP-3, GH levels for both treatment groups, while there was a decrease in both control groups. BW and BL increased in all groups. Delta IGFBP-3 levels and BL, the hydrolyzate protein group, were significantly higher than those in the non-hydrolyzate protein group, while the delta of IGF-1, GH, BW was not different for both treatment groups.

Conclusion

There was effect of giving fish hydrolysate protein on the increase in IGF-1, IGFBP-3 and GH levels in Sprague Dawley rats.

Keywords: Protein, hydrolyzate, IGF-1, IGFBP-3, GH, growth.