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"Weight Reduction in Behavioral and Pharmacological Randomized Controlled Trials in Children and Adolescents: A systematic review and meta-analysis"

Background: Intensive health behavior lifestyle treatment (IHBLT) is a critical component of pediatric obesity care.[1] The American Academy of Pediatrics (AAP) 2023 Clinical Practice Guideline (CPG) recommends at least 26 contact hours of IHBLT over the course of 3 to 12 months to achieve clinically significant weight reduction.[1] Pharmacologic therapy, including newly approved GLP-1 agonists, is also recommended as an adjunctive treatment option for eligible youth 12 years and older.[1,2] However, the expected rate of weight change with IHBLT and pharmacotherapy remains unclear, indicating an information gap for families and healthcare providers as they review treatment options.

Methods: We systematically reviewed randomized controlled trials of IHBLT ≥26 hours and obesity pharmacotherapy with health behavior lifestyle treatment in youth (ages 2–18) as reported in the 2023 AAP CPG, U.S. Preventive Services Task Force (USPSTF) recommendation statement, and PubMed/MEDLINE (2019–2025). Pharmacotherapies were categorized as "first generation" (e.g., metformin, orlistat) vs. "second generation" (e.g., liraglutide, semaglutide). Random-effects meta-analyses estimated pooled effects (weight, BMI, BMI z-score). Reduction in weight and BMI z-score are reported over a 1-year period. The following results are an interim analysis.. The following results are an interim analysis.

Results: Preliminary analyses included 18 studies of first generation pharmacotherapies, 8 of second generation pharmacotherapies, and 22 of IHBLT with BMI outcomes; 14 first generation pharmacotherapy studies, 7 second generation pharmacotherapy studies, and 15 IHBLT studies were analyzed with weight outcomes; and 15 first generation pharmacotherapy studies, 1 second generation pharmacotherapy study, and 29 IHBLT studies with BMI z-score outcomes. Pooled estimates showed decreases in BMI of –1.36 kg/m² (SE 0.22 kg/m², p = 0.00001) with first generation pharmaceuticals, –1.53 kg/m² (SE ± 0.52 kg/m², p = 0.022) with second generation pharmaceuticals, and –0.75 kg/m² (SE ± 0.23 kg/m², p = 0.004) with IHBLT alone. For weight, reductions were –2.88 kg (SE ± 0.80 kg, p = 0.003) with first generation pharmaceuticals and –4.25 kg (SE ± 1.09 kg, p = 0.008) with second generation pharmaceuticals, whereas IHBLT was not associated with significant change (–0.41 kg, p = 0.45). IHBLT reduced BMI z-score by –0.24 (SE ± 0.05, p < 0.0001), and first generation pharmacotherapies reduced BMI z-score by –0.15 (SE ± 0.05, p = 0.006).

Conclusion: These findings highlight the amount of average weight loss over 1-year from IHBLT and pharmacotherapy. Future analysis should examine sub-group differences by age, BMI status, and other patient characteristics. Together, these analyses will help inform clinical decision-making by providing evidence-based expectations to patients, families, and healthcare providers for the degree of weight loss achievable through each approach.

References:

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