Impact of Weight on the Antiplatelet Effects of Aspirin: Results of a Pooled Analysis of Two Randomized Crossover Studies Comparing a Liquid Aspirin Formulation with Enteric-Coated Aspirin

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BACKGROUND

Enteric-coated aspirin (EC-ASA) is the current standard of care for long-term aspirin therapy on the presumption of lower gastrointestinal (GI) risk. However, EC-ASA is limited by erratic absorption and associated high rates of non-responsiveness. We determined whether weight further influences the pharmacodynamic (PD) performance of EC-ASA and a novel formulation of a lipid-aspirin complex (PL-ASA) administered in liquid filled capsules that has been specifically designed to reduce GI risk.

METHODS

Two randomized crossover studies in obese diabetic patients comparing PD parameters after 3 doses of 325 mg EC-ASA or PL-ASA were pooled at the patient level. Regression analysis was performed to detect the impact of weight on thromboxane B2 (TXB2) inhibition.

Increased weight is associated with lower rates of aspirin response, an effect that is greatly dependent on type of **aspirin formulation.** The novel pharmaceutical lipid-aspirin complex liquid-filled capsules (**PL-ASA) may be an attractive alternative** over enteric-coated aspirin in obese patients.

Bhatt DL, Angiolillo DJ, PG Steg et al. *J Am Coll Cardiol* March 24, 2020, 75 (11 Suppl 1) 1344; DOI: 10.1016/S0735-1097(20)31971-9.

See also: Bhatt DL, Grosser T, Dong JF et al. Enteric Coating and Aspirin Nonresponsiveness in Patients With Type 2 Diabetes Mellitus. *J Am Coll Cardiol* 2017 Feb 14;69(6):603-612.

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RESULTS

183 samples (EC-ACA, n=91; PL-ASA, n=92) from 97 patients were included. Weight was inversely associated with TXB2 inhibition in the overall analysis (figure 1) with the trend line crossing below the 99% TXB2 inhibition threshold (complete aspirin response) at 117 kg. Similar relationships were seen individually for EC-ASA (figure 2) and PL-ASA (figure 3), however, with significantly earlier drop below the threshold with EC-ASA than PL-ASA (95 kg vs. 131 kg respectively, $p < 0.001$).

FIGURE 1

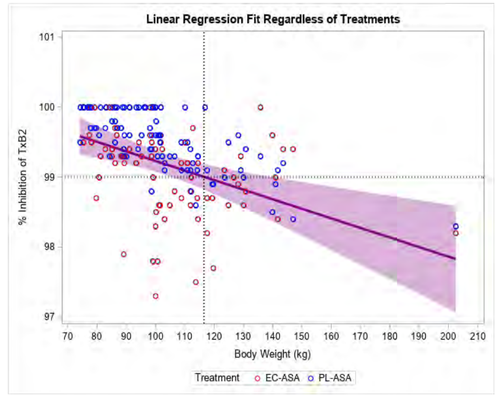


FIGURE 2

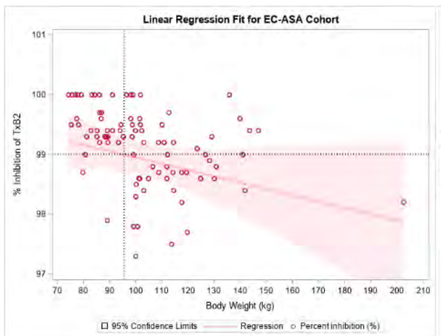
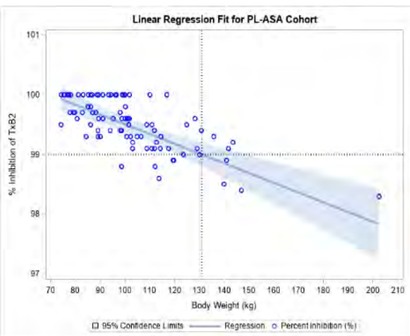


FIGURE 3



CONCLUSION

Increased weight is associated with a diminished aspirin response in diabetic patients. PL-ASA significantly modulates this effect and may be an attractive option for this population.

DISCLOSURE INFORMATION

PLx Pharma Inc. was the sponsor. The content is solely the responsibility of the authors. Dr. Bhatt received research funding, and Drs Angiolillo, Kimmelsteil, Steg, and Prats received consulting fees from PLx Pharma Inc; Dr. Deliargyris and Ms. Fan are employees of PLx.