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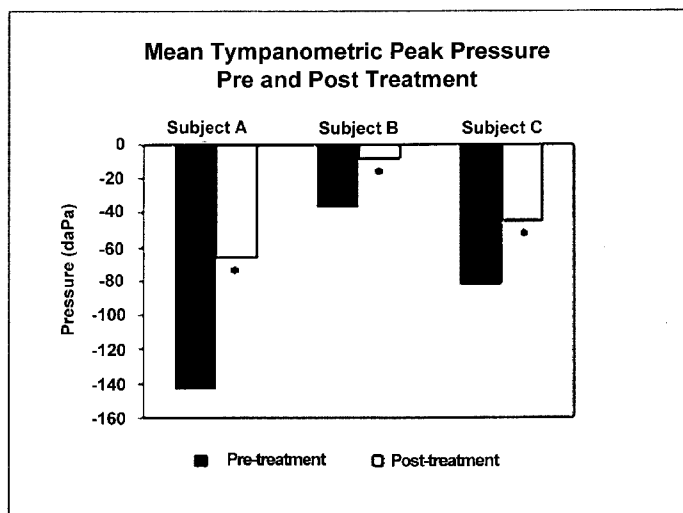
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(54) Title: METHODS AND APPARATUSES FOR INCREASING MUCOCILIARY CLEARANCE

FIG. 12

Mean middle ear pressure before and after treatment.

* Significantly different compared to respective mean pre-treatment pressure

(57) Abstract: The present invention provides non-invasive methods and apparatuses for increasing mucociliary clearance (MCC) of a subject to prevent, treat, or improve MCC in conditions such as Eustachian tube dysfunction, otitis media, and diseases of the upper and/or lower respiratory tracts. As described herein, the methods and apparatuses of the present invention increase MCC by applying non-invasive external movement/force to a subject to generate internal mechanical oscillating shear stress in the subject for prophylactic or therapeutic use in subjects at risk of developing or having a condition of the upper and lower respiratory system, Eustachian tube, or middle ear that is caused by impairment of the MCC system.