Effect of low dose interferon beta and essential phospholipids in patients with atherosclerosis and mild hypertension

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Background:

It was postulated that Interferon beta (IFN-β) would lower inflammation by attenuating angiotension II exacerbated atherosclerosis and phospholipids; the fat emulsifiers would remove plaque and reduce arterial stiffness.

Methods:

Three hypertensive patients being treated with antihypertensives were given oral 1 ml BID low dose IFN-β and 1 gm/day essential phospholipids (LECIVA-S70, VAV Lipids). Injectible ReliBeta® (recombinant IFN-β-1a) was purchased and transformed into oral low dose form using sequential serial dilution and kinetic activation (SKA) method. SKA method employed by GUNA Lab (GUNA S.p.a., Milan, Italy) was used to amplify the therapeutic potential without adverse effects [1]. Cardiac Risk Profiler, Genesis medical system using pulse wave velocity (PWV) was used to measure aortic systolic blood pressure (SBP) and atherosclerosis (arterial stiffness). Monthly readings were measured to track the progress.

Results:

All 3 patients showed normal BP readings at follow up visit along with marked reduction in aortic stiffness. Both baseline and end of treatment readings for all 3 patients are presented in the table below. No safety concerns were noted.

	Patient no 1	Patient no 2	Patient no 3
Age / Gender	39 yrs / male	58 yrs / female	53 yrs / female
Follow up duration	11 months	3 months	4 months
Baseline brachial BP	131/87 mmHg	142/82 mmHg	147/85 mmHg
EOT brachial BP	111/74 mmHg	120/74 mmHg	120/76 mmHg
Baseline Aortic SBP	116 mmHg	127.54 mmHg	133.01 mmHg
EOT Aortic SBP	97.12 mmHg	105.73 mmHg	109.22 mmHg
Baseline Carotid femoral PWV (aortic stiffness)	1219.8 cm/s (high)	1167.75 cm/s (mild)	1332.51 cm/s (high)
EOT Carotid femoral PWV (aortic stiffness)	966.34 cm/s (mild)	996.26 cm/s (high – normal)	1203.44 cm/s (moderate)
Improvement in atherosclerosis	20.8%	14.7%	9.7%
Baseline Right brachial PWV (central arterial stiffness)	1603.6 cm/s (moderate)	1631.17 cm/s (mild)	1979.99 cm/s (severe)
EOT Right brachial PWV (central arterial stiffness)	1374.05 cm/s (borderline)	1458.99 cm/s (borderline)	1807.01 cm/s (severe)
Baseline Left brachial PWV (central arterial stiffness)	1884 cm/s (severe)	1731.55 cm/s (moderate)	1780.19 cm/s (high)
EOT Left brachial PWV (central arterial stiffness)	1505.28 cm/s (mild)	1492.15 cm/s (borderline)	1641.37 cm/s (moderate)

Discussion:

Atherosclerosis is associated with vascular inflammation and IFN-β has potential to lower the inflammation component of atherosclerosis [2,3]. Phospholipids lowers cholesterol levels by altering the activities of important enzymes in lipid metabolism, thereby reducing cardiovascular risks [4]. Concomitant administration of IFN-β and phospholipids in all 3 patients showed reduction in arterial stiffness. Although we have presented only 3 cases with short follow up, the improvement in arterial stiffness necessitates further research to explore this hypothesis. Aortic stiffness showed marked improvement in the patient with longest follow up duration; thereby showing extended treatment regimen is perhaps associated with better efficacy. Thus further robust long term trials are indicated to assess the safety, efficacy and long term benefits of this treatment modality.

References:

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