Perivasculo-Ductal Connective Tissue in the Parotid Gland of Wistar Rats Exposed to Low Frequency Noise.

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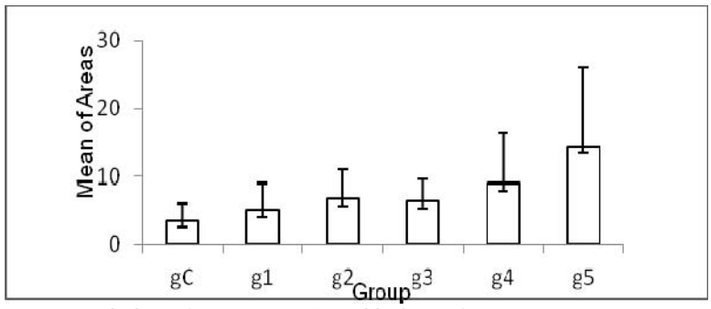
BACKGROUND: In vibroacoustic disease (VAD), fibrosis occurs in the absence of inflammatory signs, and is thought to be a protective response of tissues and organs to the presence of the corresponding agent of disease: low frequency noise (LFN, ≤500 Hz). In the parotid gland, the perivasculo-ductal connective tissue (PVDCT) follows the arteries, veins, and ductal tree, and is thought to function as a mechanical stabilizer of the glandular tissue [1].

PURPOSE: To quantify the proliferation of PVDCT in LFN-exposed rats.

METHODS: Sixty Wistar rats were equally divided into 6 groups, one kept in silence (gC), and the remaining 5 exposed to continuous LFN for different amounts of time: g1- 168h (1wk); g2- 504 hrs (3wks); g3- 840 hrs (5wks); g4- 1512 hrs (9wks); and g5- 2184 hrs (13 weeks). After exposure, parotid glands were removed and the PVDCT perimeter was measured in all groups.

RESULTS: See Chart. The global trend is an increase in the average PVDCT areas, that develops linearly and significantly with LFN exposure time ($p < 0001$).



Evolution of mean PVDCT with time of exposure to LFN

CONCLUSIONS: It has been suggested that the biological response to LFN exposure is associated with the necessity of maintaining structural integrity [2]. The parotid gland PVDCT contains two populations of collagen fibrils (one associated with fibroblasts and the other with epithelium), together with fibroblasts and the epithelium of excretory ducts and blood vessels [1]. In the parotid gland, structural reinforcement would be achieved at the cost of increased PVDCT. Hence, these results show that in response to LFN exposure, rat parotid glands increase their PVDCT.

REFERENCES:

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