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Electrophysiological and histopathological evaluation of the effect of MESNA (sodium-2-mercaptoethanesulfonate) used in the middle ear surgery on facial nerve function

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Aim: MESNA (sodium -2- mercaptoethanesulfonate) has widespread use in medicine due to its antioxidant and mucolytic effects. In recent years, it has been used also in otologic surgery. Taking advantage of breaking the disulfide bonds, it is used to dissect easily epithelial problems such as cholesteatoma and atelectasis. In particular, the possibility of cholesteatoma and facial nerve canal dehiscence make chemicals used during ear surgery to suggest potential negative effects on nerves. In this study, the effects of MESNA on the facial nerve were examined histologically and electrophysiologically.

Materials & Methods: In this study, 20 Wistar albino rats were used and were divided into four groups. Group A was identified as control group and group B was identified as sham. The animals in group C was administered in 20% MESNA solution after facial nerve was found, and in group D, 50% solution was administered to the animals. EMG measurements were performed in the preoperative and postoperative fourth weeks. Then, animals were euthanized; facial nerve samples were taken for histopathologic examination.

Results: When the EMG parameters were compared within and between each group, preoperative and postoperative results were not statistically significant. Histopathological examination showed that MESNA did not cause any inflammation, granulation tissue and a foreign body reaction.

Conclusion: As far as we know, there has been no study showing the effect of MESNA on facial nerve functions. In this study, the effects of MESNA after application directly to the facial nerve were examined electrophysiologically and histologically and it was determined that MESNA did not cause any toxic effects. As a result, it has been concluded that MESNA can be used safely in the middle ear by ear surgeons.

Biography

M Tayyar Kalcioğlu has completed his graduation from Hacettepe University and worked as a ENT Resident at Inonu University, Department of Otorhinolaryngology, Turkey. He became an Associate Professor and Professor at Inonu University, Turkey. He has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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