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Cochlear cell death induced via cisplatin or gentamycin in combination with furosemide in rodents

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Ototoxic models of animal represent an elemental tool in basic otological research. In the present study, using guinea pigs we compared cochlear lesions mediated via cisplatin applied in terms of two regimens: Consecutive application alone and in combination with furosemide. The influences of furosemide alone were also assessed; it was observed to result in temporary hearing loss and reversible damage to the stria vascularis. Consecutive administration of cisplatin alone tended to be disadvantageous because it bred progressive body weight loss and higher mortality compared with the combined regimen, which utilized a smaller cisplatin dose. The combined regimen brought about remarkable hair cell loss without corresponding lesion of spiral ganglion neurons (SGNs). This difference suggests that the co-administered regimen did not mimic the damage to cochlear neuronal innervation caused by clinical application of cisplatin. In the meantime, we spread this method to the ototoxic model build in mice. Co-administration of gentamicin and furosemide caused marked hair cell loss as well as less mortality compared with consecutive application of gentamicin in mice. Due to different pharmacokinetics between cisplatin in guinea pigs and gentamicin in mice, the injection regimens of co-administration of furosemide-cisplatin in guinea pigs and gentamicin-furosemide in mice varied. Overall, the methods of co-administration of cisplatin/gentamicin and furosemide in rodents facilitate ototoxic model build.

Biography

Li Xia has been engaged in otology for nearly 10 years. Now he is working as a senior Researcher as well as a clinical doctor in the Dept. of Otorhinolaryngology of Shanghai 6th People's Hospital. He has published 4 papers in reputed international journals. He has extensive experience in ototoxic research. In particular, he mainly worked on the drug-induced ototoxicity. He solved many issues about the ototoxic model establishment in laboratory, which could facilitate the researches of neural function and the therapies against ototoxicity. He is pleased to share his knowledge and skills with fellow researchers.

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