scending serotonergic inhibition with dominant role of spinal 5-HT1A receptor in late-phase allodyn carrageenan-induced inflammatory pain.

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Introduction

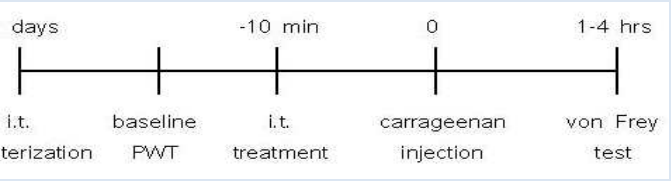
ophysiological studies demonstrated a limited role of 5-hydroxytryptamine 3 receptor (5- , but facilitatory role of 5-HT1AR and 5-HT1BR in spinal nociceptive processing of eenan-induced inflammatory pain.Serotonin (5-hydroxytryptamine, 5-HT) release in spinal eaches the maximum 2-3 hours and returns to baseline 8 hours after carrageenan injection, indicates a different role of spinal serotonergic projection neurons between early- and late- of carrageenan inflammation.

Materials and Methods

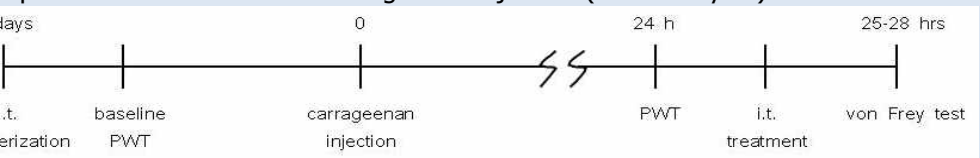
e SD rats, intrathecal (i.t.) catheterization, von Frey test

otonin hydrochloride, 8-OH-DPAT(5-HT1A agonist) ,CP93129 (5-HT1B agonist), mCPBG agonist), WAY-100635 (5-HT1AR), SB-224289 (5-HT1BR), Ondansetron (5-HT3R)

xperiment – Immediately after carrageenan injection (Early allodynia)



experiment –24 hours after carrageenan injection (Late allodynia)



experiment – Effect of i.t. 5-HT in normal or 5-HT depleted rat

7- dihydroxytryptamine (5,7-DHT, 60μl/20ml) 3 days before

antar injection of carrageenan for 5-HT depletion

id chromatography tandem mass spectrometry of spinal 5-HT content

naximum possible effect or hyperalgesic area under curve was calculated for the statistical s.

Results

Fig. 1. 5-HT(serotonin) of anti-allodynic effect in early and late-phase allodynia.

; No significant effect on early allodyn, but attenuated the late allodynia

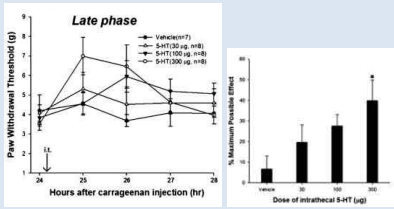


Fig. 2. Effect of i.t. 5-HT on enhanced allodynia in 5-DHT depleted rat .

Both early and late allodynia enhanced.

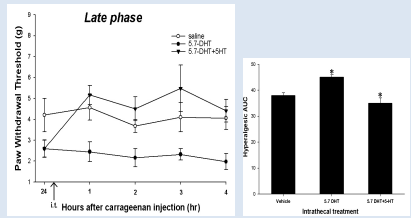
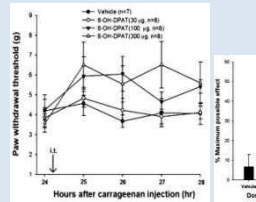


Fig. 3. 5-HT1AR agonist (8-O DPAT) produce significant an allodynic effect on late-phase

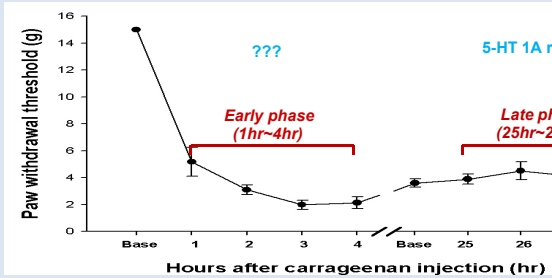
; No significant effect on early all attenuated the late allodynia



Conclusions

❖ Spinal 5-HT1A, but not 5-HT1B, 5-HT3, receptors mediate the descending serotonergic inhibition on spinal nociceptive processing of late-phase mechanical allodynia in carrageenan induced inflammation.

❖ **Descending serotonergic inhibition role in carragee**



References

[1] S. Bingham, P.T. Davey, M. Sammons, P. Raval, P. Overend, A.A. Parsons, Inhibition of inflammati induced thermal hypersensitivity by sumatriptan through activation of 5-HT(1B/1D) receptors, Exp. Neurol. 167 (2001) 65–73.

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