Both frequency and interaural delay affect event-related potential responses to binaural gap

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( ). 4 400- ( ). 800- 2 800- 400- ( ). 1600 *NeuroReport* 19:1673 1678 © 2008 400 800 &

Keywords:

Introduction

T 1 . H 2 5 . C 6,7 , I . T (1 0 1) 2,3 . I A S 2 . E - - 2,6,8,9 . R . P . M , ITD). I) - ITD 0 , ITD, 0.5 , ITD 1 , ITD , 4 , - T ITD 0 ITD . T 3 5 . T ITD. T - (ERP) - ITD . U A S 2 100 H 1/3 .

Methods

T - (18 29 , =22.1 , 13) ,

, . T (15 B) - 125 8000 H , . A , , , , , . T - 12 . G 1 , E 1 , 2 - , E 2. T C P H A S D P - P U . C G - 2000 (30- /) - - MATLAB (T M I ., N , M , USA) 48 H 16- . T - 200- 2 . N (SPL) . T G 512- - FIR 10 H - 512- - FIR 400, 800, 1600 H (=1/3). T C S B (C SB A 2 S, C T L , S) , 56 B SPL. T ERP 10 , 200- ( ). T . ERP . I E 1, 400, 800, 1600 H . S ITD 0 . E 160 32 . T 768 16 . I 10 . T 1000 . I E 2, 400 H 800 H . T ITD 0, 2, 4 . T 12 E - 2 . E (ITD) 120 24 . T 864 12 . I , 10 . T 1000 . E (EMI S A E - A S) 64- N S S A (C L , V , A). P . D (: 0.05 40 H ; : 1000 H), . F . F ERP , 11 N S (C L , V , A). D ERP 1500- 100- . D ERP 2400- 100- . T - - (±100 mV) . F , ERP . A ERP - - 20 H . T E 1 ITD E 2, N1 (100 210 -) P2 (210 350 -) , (F1, F , F2, FC1, FC , FC2, C1, C , C2) .

Results

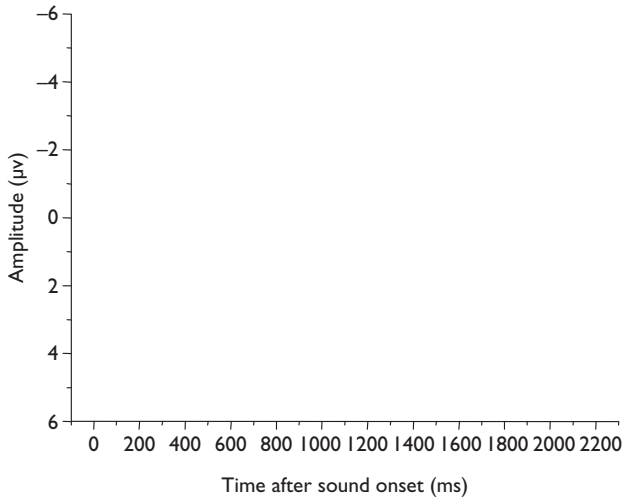
T 96.88% (SE=1.04%) E 1 98.59% (SE=0.50%) E 2. T ERP . I - -

Experiment 1

F 1 , ERP FC ITD 0 . C , N1-P2 . F ERP , N1-P2 - - , ERP . F - (ANOVA) - N1-P2 - - , F(3,33)=18.883, $P<0.001$. P - , *t*- ERP

($P<0.01$). N - , , , (P 4 0.05). T , F . 2 , .

F 1 ERP , , N1-P2 , - -, , . T ERP , , 1600-H , . F



, , , , , - -, ANOVA , F(3,33)=8.998, $P<0.001$. P - , *t*- N1-P2 , - -, 1600-H 400-H ($P<0.001$) 800-H - (P=0.001). T ERP , 400-H 800-H , , , (P 4 0.05) (F 2).

Experiment 2

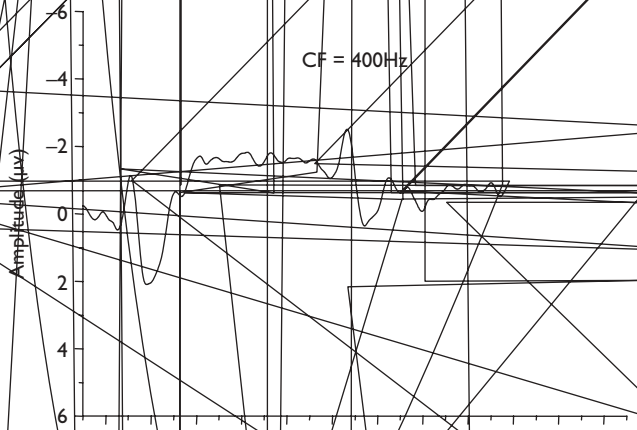
I E , 2, ERP , 400-H 800-H ITD . A , , , ITD.

F 3 , ERP , FC 400-H , (,) 800-H , (,) ITD 0, 2, 4 . C , ERP , ITD. P , ITD 0 4 , N1-P2 , - -, , .

F 4 N1-P2 , - -, , , 400-H (,) 800-H (,) ITD . A (ITD) -, ANOVA F(2, 22)=18.187, $P<0.001$.

F 400-H , - -, ANOVA ITD F(2, 22)=30.257, $P<0.001$. P - , *t*- N1-P2 ITD 4 ITD 0 ITD 2 ($P<0.001$). N , ,

ITD $P<0.001$. P - *t*- ERP
0 2 . ITD 0
F 800-H , - ANOVA ITD 2 ITD 4
ITD F(2, 22)=15.802 ($P<0.01$), ITD 2 4 .
ITD 0 , *t*-
ERP 400-H
800-H
(t_{11}=0.102, P=0.920). ITD 2 ,
t- ERP
400-H
800-H (t_{11}=5.707, $P<0.001$). ITD 4 ,
t- ERP
400-H
800-H (t_{11}=−0.239, P=0.816).



Discussion

I
N1-P2 ERP
. A
- ERP
2,3 . O ,
N1-P2
ERP . T , ERP
- .
T
SPL,
ERP . T
N1-P2 1600-H
400-H 800-H . T
1600-H
400-H 800-H .
T A
S 2
-
250 2000 H . T
12

13 . H , r$_w$ 2 ,

I ERP ITD. M , ITD . S , 400-H ITD 4 , ITD 2 , ERP . F 800-H , ITD 2 4 ERP . O 400-H 800-H ITD 14 , . T ERP .

I ITD 4 J 15 . A ( ) - .

O . A ITD 4 , ERP 4 . I , - .

A ERP , (. .) (. . ') ERP . I , 16 , - . T 17 20 , A 21 , ERP . M ,

ITD, N1 P2 22,23 . T

I , . ERP ITD. T (. .) .

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T N N S F C (30670704; 30711120563; 60605016; 60535030; 60435010) 985' P U .

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