Gender differences in multichannel ERPs related to implicit processing of facial attractiveness

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Abstract

We aimed at studying the alterations in brain electrical activity due to the level of processing (conscious or not) and to the gender of the viewer in healthy adult volunteers during the assessment of attractiveness of female faces. 128-channel EEG was recorded while our participants (41 female, 45 male) performed two visual tasks. In the first (Implicit) task the stimuli were monochrome photographs of female faces, butterflies and flowers. The instruction was to press button 1 for faces and button 2 for non-face objects. In the second (Explicit) task the stimuli were faces from the first task. The instruction was to press button 1 for a face that was considered attractive by the participant and button 2 for a face that was considered less attractive. The evoked activity elicited by face presentation was averaged for conditions WB (attractive) and WU (non-attractive) in both tasks. Statistical comparison of WB vs. WU conditions was done separately for male and female groups and for two tasks. In the Implicit task (where implicit assessment of facial attractiveness was implied), WB vs. WU differences were located left frontal, central and right posterior for the latencies longer than 200 ms. In both tasks, gender-dependent differences were seen in 70-80 ms and 120-130 ms, and for latencies longer than 200 ms. While in the Explicit task the patterns of WB-WU differences were similar in general in both male and female groups, the influence of facial attractiveness on ERPs in the Implicit task seem to be more gender-dependent.

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