Scientists evaluated 5-HT modulation of pain perception in humans

NEWS

Pain Management

Despite the availability of clear evidence for the serotonergic regulation of descending control of pain in animals, a little evidence is available for humans. The most of awareness comes from the use of serotonin (5-HT)-modulating antidepressants as analgesics in the clinical management of chronic pain. A study was conducted in which acute tryptophan depletion (ATD) was used to manipulate 5-HT function and examine its effects of ATD on heat pain threshold and tolerance, attentional manipulation of nociceptive processing and mood in human volunteers.

Fifteen healthy participants received both ATD and balanced amino acid (BAL) drinks on two separate sessions in a double-blind cross-over design. Pain threshold and tolerance were determined four-hour post-drink via a heat thermode. Additional attention, distraction and temperature discrimination paradigms were completed using a laser-induced heat pain stimulus. The mood was assessed prior to and throughout each session.

The investigation outlined that the ATD lowered plasma TRP levels by 65.05 ± 7.29% and consequently reduced pain threshold and tolerance in response to the heat thermode. A direct correlation was found between the reduction in total plasma TRP levels and reduction in thermode temperature. In contrast, ATD showed no effect on laser-induced pain nor any significant impact of the distraction-induced analgesia on pain perception but it reduced the performance of the painful temperature discrimination task. Importantly, all findings were independent of any effects of ATD on mood. This was the first demonstration of 5-HT effects on pain perception and results were not confounded by mood changes.

Source:	Psychopharmacology (Berl). 2017 Aug 10
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