Evidence for Self-Medication
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Efficacy, safety and tolerability of the fixed combination of ibuprofen (400 mg) and caffeine (100 mg) compared with ibuprofen, caffeine and placebo in in acute pain

Results of a clinical study (randomised, placebo-controlled, double-blind)

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Does combining ibuprofen with caffeine have advantages over ibuprofen alone in the treatment of acute pain? A randomised, placebo-controlled, double-blind study compared efficacy, safety and tolerability of an ibuprofen + caffeine combination with that of the separate substances or placebo in acute, moderate to severe pain. The combination was superior to all the other treatments in relation to pain relief over 8 hours, onset of action, responder rate and the ingestion of a rescue (escape) analgesic; safety and tolerability were demonstrated. Thus the combination of ibuprofen and caffeine is a superior treatment option compared with ibuprofen alone for the treatment of acute pain.

Ibuprofen is a commonly used analgesic drug and caffeine is a proven co-analgesic [1]. Does 100 mg caffeine also potentiate and accelerate the effect of 400 mg ibuprofen? The present study answers this question.

Methods

The present study [2] compared the efficacy, safety and tolerability of the combination 400 mg ibuprofen plus 100 mg caffeine with that of 400 mg ibuprofen, 100 mg caffeine or placebo. The study preparations were tested in a total of 562 patients who had undergone extraction of a wisdom tooth. This pain model is widely used and efficacy in this model is predictive for other acute pain such as migraine and tension headache. The primary efficacy parameter was pain reduction over 8 hours after ingestion of the study medication. Safety and tolerability were determined over a period of 5 days in which patients took either one tablet of ibuprofen plus caffeine three times daily or one tablet of ibuprofen three times daily. Results were analysed using standard statistical methods.

Results

Ibuprofen plus caffeine was significantly superior to ibuprofen (and the other treatments), with the pain reduction 30%–50% stronger than with the mono-preparation (**Fig. 1**). Patients reported a relevant relief of pain 39 minutes earlier with the combination than with ibuprofen alone, and even at the first measurement after 15 minutes, the pain relief achieved with the combination was already significantly superior to that of ibuprofen. The combination produced meaningful pain relief in significantly more patients than ibuprofen alone (71% versus 53%; **Fig. 2**). In addition, with ibuprofen 32% of the patients had to take an additional rescue medication (an analgesic) because the effect was not sufficient, and with the combination only 16% of patients had to do so (**Fig. 3**).

There was no difference in the patient-assessed tolerability of ibuprofen plus caffeine and ibuprofen alone: approx. 70% of patients in both treatment arms rated this as “very good” or “excellent”.

Discussion and conclusions

This study demonstrated (as many others before) the efficacy of ibuprofen 400 mg in the treatment of acute pain. However, the combination of ibuprofen 400 mg plus caffeine 100 mg exceeded the efficacy of ibuprofen alone in all parameters relevant to patients with pain. The pain relief was faster and stronger than with ibuprofen alone, and the combination helped considerably more patients. In addition, most of the patients rated the combination as good to excellent in terms of tolerability.

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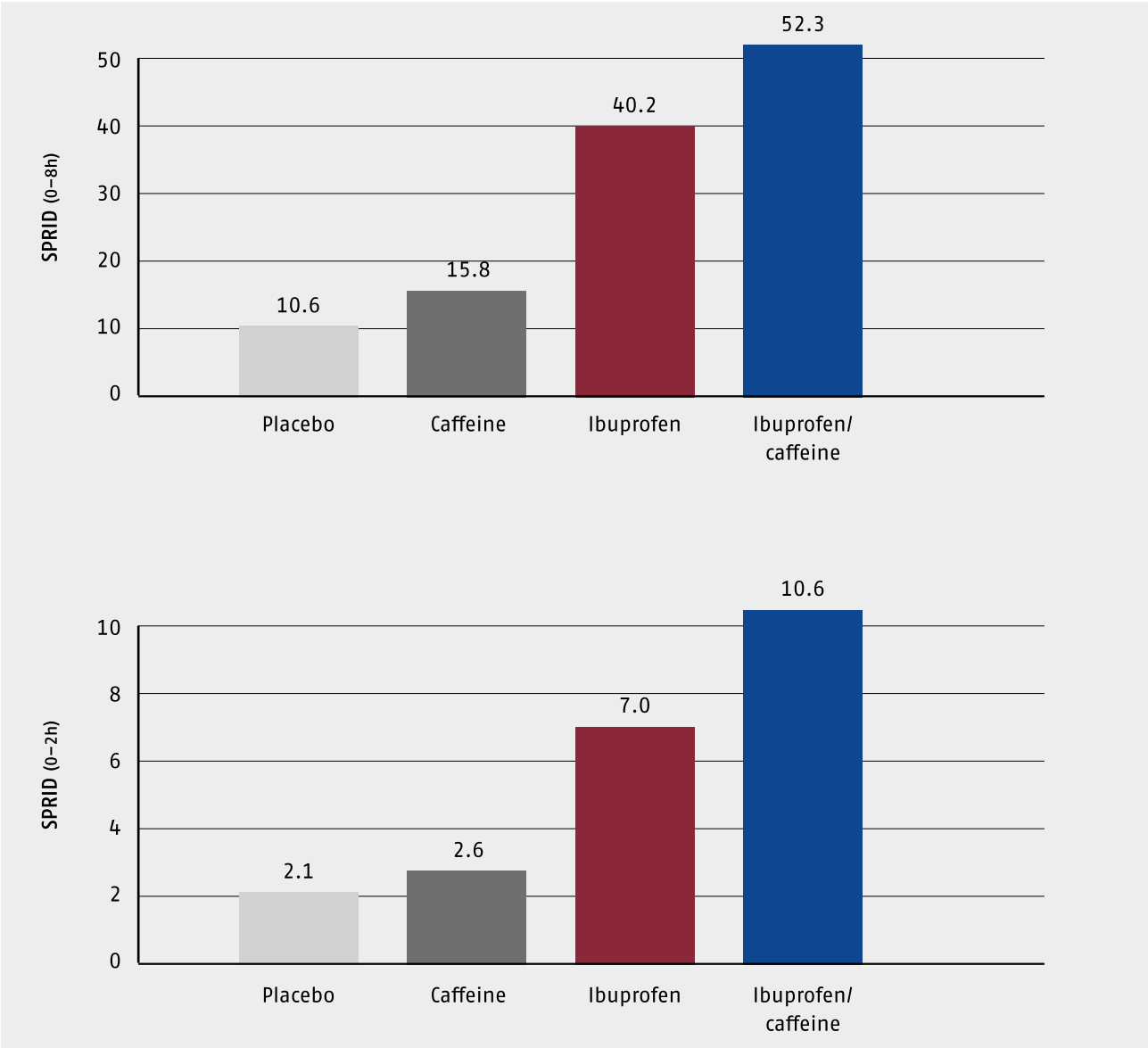

Fig. 1: Pain relief over a period of 0–8 hours (or 0–2 hours) after ingestion of the study medication. SPRID: Sum of pain relief and pain intensity difference. Data from [2]

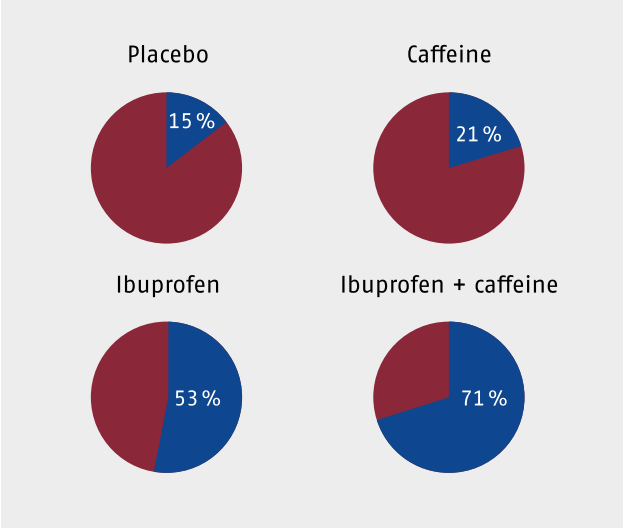

Fig. 2: Percentage of patients who experienced meaningful pain relief from 0 to 6 hours after taking the investigational preparation

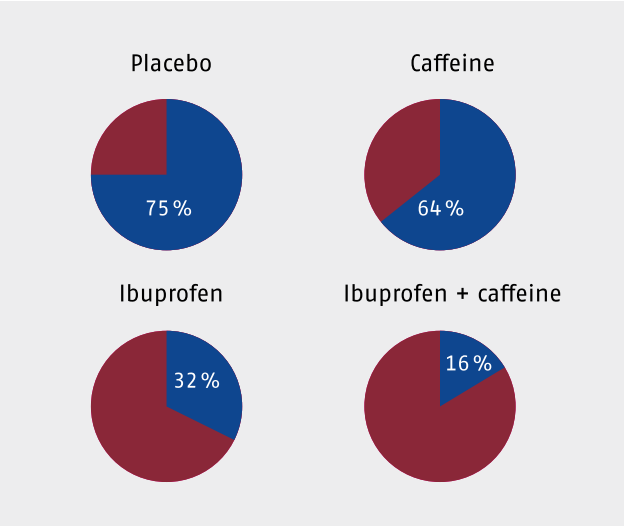

Fig. 3: Percentage of patients who had to take a second dose of the analgesic or rescue medication (analgesic) within the first 8 hours

The efficacy of 400 mg ibuprofen in acute pain cannot be increased by raising the dose to 600 or 800 mg (ceiling effect; [3, 4, 5]).

The combination of 400 mg ibuprofen with 100 mg caffeine thus represents an interesting new option for the treatment of acute pain.

Literature

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