INJECTABLE ASPIRIN AS A POSTOPERATIVE ANALGESIC

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SUMMARY

The effectiveness of lysine acetyl salicylate (LAS) 1.8 g, equivalent to aspirin 1 g, in relieving severe, immediate, postoperative pain has been compared with that of morphine 10 mg in comparable groups of patients. A single injection of LAS 1.8 g did not give effective or consistent relief of pain, while morphine was both effective and consistent in its action. However, LAS was shown to have some analgesic activity.

In the dosage required to provide acceptable pain relief, conventional narcotic drugs often produce undesirable side-effects, the most important being depression of the cardiovascular, respiratory and central nervous systems.

Mild analgesic drugs such as the salicylates or paracetamol provide good relief from many types of pain. However, the fact that they had to be taken orally has limited their usefulness to the anaesthetist.

A parenteral salicylate preparation, lysine acetyl salicylate (LAS), has been available in Europe for several years. This has been used in the treatment of severe pain with varying results (Doutre et al., 1970; Gautier-Benoit, 1970; Nicolas and Jeanniard Du Dot, 1972). The most favourable report is that of Kweekel de Vries and colleagues (1974), who found that the equivalent of 1 g of aspirin was as good an analgesic as 10 mg of morphine when given i.m. in the period immediately after operation.

It was suggested that this drug was a safe and effective analgesic (Editorial, 1980; Nicholson, Prescott and Coulston, 1980). We have evaluated the effectiveness of parenteral aspirin as a postoperative analgesic.

The commercially available preparation Aspegic consists of lysine acetyl salicylate 0.9 g with glycine 0.1 g dissolved in 5 ml of sterile water immediately before use. This corresponds to acetyl salicylic acid 0.5 g.

METHOD

Fifty patients in good general health admitted for routine elective surgery were studied, 20 having undergone gynaecological and 30 orthopaedic operations (table I). Those with a known allergy to aspirin or with abnormal bleeding tendency were excluded.

<table>
<thead>
<tr>
<th>Nature of operation</th>
<th>Patients receiving LAS</th>
<th>Patients receiving Morphine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gynaecology</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Abdominal hysterectomy</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Tubal ligation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthopaedic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meniscectomy</td>
<td>6 (5)</td>
<td>1</td>
</tr>
<tr>
<td>Internal fixation</td>
<td>10 (3)</td>
<td>6</td>
</tr>
<tr>
<td>Others</td>
<td>4 (2)</td>
<td>3</td>
</tr>
</tbody>
</table>

A simple five-point scoring system (Dundee, 1980) was used to grade pain intensity, ranging from intolerable (4) to no pain (0). This was explained to the patient at a preoperative visit when the nature of the study was described and verbal consent obtained. All observations were made in the same surroundings with the same recovery ward staff.

Patients in the study were not receiving routine analgesic drugs in the period before operation. No analgesics were given in the 12 h before induction of anaesthesia. A benzodiazepine was given on the night before surgery if necessary.

The patients were anaesthetized with thiopentone, nitrous oxide and halothane, with a myoneural blocking drug as necessary. Ten in the orthopaedic group received a single dose of fentanyl 150 μg at induction. Analgesia was given when requested by the patient, who was first asked to grade pain severity. Either LAS 1.8 g i.v. over 3 min or morphine up to 10 mg i.v. was given.
Allocation was random within the design of the study. Pain severity was graded at 5, 10 and 15 min following administration of the analgesic. If the patient was not comfortable 30 min after the first injection, further analgesia was given i.v.

RESULTS

The commercially available preparation of lysine acetyl salicylate (LAS) was readily soluble in water and painless on i.v. injection.

The physical characteristics of the patients receiving LAS and morphine were broadly comparable with respect to sex, age, weight and physical fitness, as was the average duration of operation. The time from end of surgery until patients complained of severe pain was similar in all series (30-50 min), even when fentanyl was given at induction of anaesthesia, as was the severity of pain when the analgesic was given. The findings as regards pain relief after operation were not modified by the administration of fentanyl at the induction of anaesthesia and data from the two orthopaedic series were pooled.

Table II summarizes the findings and demonstrates the superiority of morphine over LAS. Only three of the patients receiving LAS did not require an additional analgesic after 30 min, as compared with none of the morphine series (P<0.001). The most striking difference was the relaxed drowsy condition of the patients receiving morphine as compared with the alert and anxious condition of those receiving LAS.

However, LAS was not entirely without analgesic effect, as eight patients had a two-point reduction in pain scores at 15 min. On a three-point scale (pooling severe and very severe, and also nil and slight pain) there was a significant improvement (χ² = 10.251; d.f. = 2; P<0.01) 15 min after giving LAS.

DISCUSSION

No explanation can be offered for the discrepancy between these findings and those of other workers (Dundee and McAteer, 1981). Perhaps the use of several drugs, different standards of evaluation or different expectations from both patient and observer may offer a partial answer. It is clear that the mild analgesic, lysine acetyl salicylate, given in the maximum recommended dose of 1.8 g, is not an effective analgesic for severe pain after surgery. In this respect the present findings agree with those of Tammisto and Tigerstedt (1980), who consider that mild analgesics should be supplemented by opiates to provide adequate pain relief in the period immediately after operation. However, since the small analgesic effect demonstrated in this study was found to be significant, the parenteral form of lysine acetyl salicylate could be worthy of study for relief of lesser degrees of pain—perhaps in the later postoperative period.

REFERENCES


L'ASPIRINE INJECTABLE EN TANT QUE PRODUIT ANALGESIQUE POSTOPERATOIRE

RESUME

On a compare l'efficacité de 1,8 g d'acétylsalicylate de lysine (LAS), équivalent à 1 g d'aspirine, pour soulager les fortes douleurs faisant immédiatement suite à une opération, avec celle de 10 mg de morphine sur des groupes comparables de patients. Une seule injection de 1,8 g de LAS n'a pas apporté de
soulagement efficace ou constant de la douleur, alors que la morphine a été à la fois efficace et constante dans son action. LAS a toutefois fait preuve d'une certaine activité analgésique.

**INJIZIERBARES ASPIRIN ALS POSTOPERATIVES SCHMERZMITTEL**

ZUSAMMENFASSUNG

Die Wirksamkeit von 1,8 g Lysinazetylsalizylat, was 1 g Aspirin entspricht, bei der Linderung von schweren Schmerzen gleich nach der Operation, ist mit der Wirkung von 10 mg Morphin bei vergleichbaren Gruppen von Patienten verglichen worden. Eine einzelne Injektion von 1,8 g Lysinazetylsalizylat ergab weder eine effektive noch eine anhaltende Schmerzreduktion, während die Auswirkung von Morphin sowohl effektiv als anhaltend war. Es wurde jedoch gezeigt, dass Lysinazetylsalizylat eine gewisse schmerzenslindernde Wirkung hat.

**ASPIRINA INYECTABLE COMO UN ANALGESICO POSOPERATIVO**

SUMARIO

Se comparó la efectividad de 1,8 g de acetilsalicílico de lisina (ASL), equivalente a 1 g de aspirina, para aliviar el dolor agudo e inmediato postoperatorio, con 10 mg de morfina, en grupos comparativos de pacientes. La administración de una sola inyección de 1,8 g de ASL no produjo un alivio consistente ni efectivo del dolor, mientras que la morfina sí fue tanto consistente como efectiva en esta función. Sin embargo, el ASL mostró cierta actividad analgésica.