consistently report that parents would prefer to be informed of the
diagnosis as early as possible.

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took part in the study. Thanks are also due to Dr D Gardner-Medwin, consultant paediatric neurologist, Newcastle General Hospital, and Dr G
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Postoperative analgesia for circumcision

Local anaesthetics, often used to relieve pain after circumcision, are
usually administered by caudal epidural injection or by block of the
dorsal nerves of the penis. Both techniques are used in our hospital, and we compared the potentially less hazardous penile block with the
caudal approach.

Patients, methods, and results

We studied 50 boys (mean age 4-5 (range 2-12) years) undergoing
circumcision for medical indications as day patients. After admission they
were interviewed with their parents by one of us (JW) and informed consent
obtained. The patients were premedicated with oral diazepam 200 µg/kg, and
anaesthesia was induced with thiopentone 5 mg/kg followed by nitrous
oxide, oxygen, and halothane. They were randomly allocated to one of two
groups to receive caudal or penile block immediately before surgery. In
both groups 0-5% bupivacaine without adrenaline was used; for caudal
block 0-25 ml/year of age was administered, and penile block was achieved
with 0-2 ml/kg, modifying the method described by Bacon. Clean, no
touch techniques were used.

A 21 gauge needle was inserted just below the lower border of the pubic
arch and advanced midway between the arch and the root of the penis,
 piercing Buck’s fascia. Two thirds of the analgesia was injected after aspiration
to exclude puncture of blood vessels. After partial withdrawal of the
needle the remaining one third was distributed subcutaneously on each side of
the anterior aspect of the root of the penis to anaesthetise fibres arising from
the genitofemoral and ilioinguinal nerves.

After operation (the mean duration of which was similar in each group)

<table>
<thead>
<tr>
<th>Comparison of effects of caudal and penile blocks</th>
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</thead>
<tbody>
<tr>
<td>Caudal block</td>
</tr>
<tr>
<td>Mean (SD) time to onset of pain (minutes)</td>
</tr>
<tr>
<td>No of patients requiring paracetamol</td>
</tr>
<tr>
<td>Quality of sleep:</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Bad</td>
</tr>
<tr>
<td>Paracetamol required*:</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

*Excludes those given supplemental analgesia in hospital.

analgesia was assessed continuously for five hours by the anaesthetist (JW)
who had conducted the preoperative interview and induced anaesthesia;
she had then left the anaesthetic room so that she did not know which type of
analgesia had been used. Before the child left hospital his parents received
a form for assessment of analgesia at home and some parameters were
recorded.

The table shows the results. The time from administration of the block
to first evidence of pain was assessed by the anaesthetist (in hospital) or
parents (at home), the need for supplemental analgesia in hospital (papa-
terum) by the anaesthetist, and the quality of the night’s sleep and need
for paracetamol after discharge by the parents. Statistical analysis was
performed using a single t test and χ² tests with Yates’s correction.

We found no significant difference between caudal and penile block in the
time to onset of postoperative pain, requirement of further analgesia in
hospital or at home, or in quality of sleep on the night after operation.

Comment

Caudal analgesia provides better pain relief in the immediate
postoperative period than morphine or buprenorphine administered at
induction of anaesthesia. Penile block reduces the need for analgesics in the
first 12 hours after surgery. Both techniques anaesthetise the prepucce—caudal analgesia by segmental block (sacral nerves 2, 3, 4) and penile block by blocking nerve conduction—although some
fibres from the ilioinguinal and genitofemoral nerves may contribute to
the innervation.

Serious complications may occur after caudal analgesia, though their
incidence is low. These include sepsis, dural puncture, transient paralysis,
and undetected puncture of blood vessels with ensuing haemorrhage, which may not be detected early when patients are
treated on a day case basis. One of our patients suffered distressing
weakness of the legs after caudal block despite the small volume of
analgesic used. Two patients who received penile block had small
haematomas at the base of the shaft of the penis.

Penile block during general anaesthesia for circumcision may be
recommended as a simple procedure providing analgesia as reliably and
effectively as caudal block and may be considered safer for day
case surgery.

We thank our surgical and anaesthetic colleagues and the parents and
children for their help with this study; and Mrs O Tinson and Mrs H Hart
for secretarial help.

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Isosorbide dinitrate and isosuxprine in exercise induced asthma

Pathogenesis of exercise induced asthma remains uncertain. Respira-
tory heat loss is undoubtedly important. Whether it stimulates
vagal receptors or causes degradation of mast cells has not been
established. Significant rises in neutrophil chemotactic factor and plasma
histamine concentrations have been shown in response to exercise,
suggesting that mediator release may be a factor. Beta agonists and sodium
bicarbonate are effective inhibitors of exercise induced asthma but have
effects on both the bronchial smooth muscle and the mast cells. We have studied the effects of the two
smooth muscle relaxants isosuxprine and isosorbide dinitrate given by
inhalation as compared with sodium bicarbonate and salbutamol.

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