Abstract
The patient acceptability of open carpal tunnel release under local anaesthesia (LA) and tourniquet control was assessed by a postal survey. 58 releases on 44 patients over a 3-year period were surveyed, with a questionnaire response rate of 91%. Use of LA for this procedure was effective and acceptable to most patients, but the incidence of severe pain due to infiltration of LA and the tourniquet intolerance rate were unacceptably high and have been addressed by use of LA with adrenaline and bipolar diathermy to dispense with tourniquet and use of dental syringe and injecting LA from proximal to distal direction to make infiltration more comfortable.

Introduction
There is reluctance by surgeons to perform open carpal tunnel release under LA. The reasons given are poor patient tolerance, poor exposure and increased operative time. This study was done to assess the effectiveness and acceptability by patients of open carpal tunnel release under LA and tourniquet control. A postal survey was used.

Methods
58 carpal tunnel releases were performed on 44 patients over a three years period, 1995 to 1997. 33 were females and 11 males (ratio 3:1). The average age was 55 (range 29-88).

The diagnosis of carpal tunnel syndrome was mainly based on history, physical findings and provocative tests. 9 patients had nerve conduction studies.

The procedures were performed as day cases in the operating room. LA infiltration was done along the proposed line of incision in the skin and subcutaneous tissues as soon as the patient was put on the operating table. Initially, standard needles and Bupivacaine and later dental syringes with 30G needles and Mepivacaine were used. Brachial tourniquet was applied but not inflated until skin preparation, draping and limb exsanguination by elevation and manual compression was done. Tourniquet was inflated to a pressure of 200mm of Hg. Routine carpal tunnel release was then performed. 45 procedures were performed by Consultants and 13 by training Registrars. Patients were discharged the same afternoon and reviewed two weeks later.

A patient satisfaction survey was done by a postal questionnaire which addressed opinion regarding preference for LA over GA, pain due to LA infiltration, tourniquet pain, effectiveness of LA, patient comfort during surgery, outcome of surgery, and overall satisfaction with the package.

Each question had five response alternatives in a range of answers gives more reliability and greater opportunity to express the precise nature of view.

Results
40 patients replied to the questionnaire, a response rate of 91%.

In summary, preference for LA was 70%, for GA 14% and 16% were uncertain about the choice of anaesthesia. Pain due to infiltration of LA was severe in 20% and tourniquet pain was severe in 29%. Effectiveness of LA was satisfactory in 91%, comfort during surgery was satisfactory in 70%, outcome of surgery was satisfactory in 87% and overall contentment with this method of treatment was satisfaction in 96% (Tables 1 & 2).

Discussion
This survey revealed that LA was the vastly preferred type of anaesthesia by the patients and it was also effective. The outcome of surgery was satisfactory and the patient contentment with the overall aspects of the package was excellent.

These findings support the previous work done in this field, but the incidence of severe pain due to infiltration of LA and tourniquet intolerance rates are unacceptably high. Although, assessment of pain is difficult due to the myriad of factors that modify how an individual experiences and copes with this disagreeable sensation, acute pain can be usefully measured by simple verbal ratings. Generally, these patients do not complain about tourniquet pain until the procedure is over.

Studies have shown that use of a tourniquet can be obviated and satisfactory haemostasis achieved by use of LA with adrenaline. A slight increase in operative time was reported due to increased bleeding but it was controlled with swabs and bipolar diathermy. No case of digital ischaemia was encountered.

Pain due to the infiltration of LA may be reduced by measures such as use of dental syringe with 30G needle, injecting from proximal to distal direction, infiltrating only the skin and subcutaneous tissues and using maximum of 6ml of anaesthetic fluid. Several patients found talking to a nurse, “verbal analgesia”, during the procedure very supportive.

LA is quick, convenient, inexpensive, safer for unfit patients and ideal for the needs of day case surgery.

In conclusion, LA is satisfactory for open carpal tunnel release and the addition of adrenaline may enable us to dispense with the tourniquet.

Table 1: Severity of Pain

<table>
<thead>
<tr>
<th></th>
<th>No Pain</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourniquet pain</td>
<td>51%</td>
<td>20%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>LA infiltration pain</td>
<td>50%</td>
<td>30%</td>
<td>30%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 2: Extend of satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Satisfied</th>
<th>Unsatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness of LA</td>
<td>91%</td>
<td>9%</td>
</tr>
<tr>
<td>Comfort during surgery</td>
<td>70%</td>
<td>14%</td>
</tr>
<tr>
<td>Outcome of surgery</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>Overall package</td>
<td>96%</td>
<td>4%</td>
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References