Purpose of this alert

To highlight the risks associated with the use of transdermal patches (both from the medicine and the delivery system).

REQUIRED ORGANISATIONAL ACTION

1. Ensure that the organisation has administration guidelines for transdermal patches and that the guidelines cover these points:
   • Follow specific instructions for the use of each patch.
   • Do not cut patches, unless the specific instructions allow this or specific advice is received from a pharmacist, pain specialist or pain team.
   • Remove all used patches when a new one is applied, as accumulation of the medicine can cause over-dosage.
   • Apply patch to a new site of clean, dry, intact, non-shaven, less-hairy skin each time (some patches specify appropriate sites in the product information).
   • Ensure the active patch is put on the skin before the protective cover is applied.
   • Write the day, date and time of patch application on the back of the adhesive cover (if there is one) or on a piece of tape put on the skin next to the patch.
   • Record day, date, time and location of the applied patch on the medication chart.
   • Record day, date and time on the medication chart when the patch is removed.
   • Inform patients to continue to monitor themselves for adverse effects after patch removal.
   • Dispose of used patches safely by folding in half (sticky sides together) then disposing of them securely, so no one else can use them.
   • Ensure inadvertent heating of a patch does not occur – it can cause lethal over-dosage.

2. Ensure MRI, diathermy, defibrillation and cardioversion procedures include checking for patches prior to the procedure. Some patches can burn skin if worn during application of electrical or magnetic fields:
   • If written information is given to patients prior to these procedures, include information about what to do if a patch is being worn.

3. Separate out or restrict storage of multiple strengths of the same patch in clinical areas to prevent look-alike, sound-alike errors.
Case studies

1. Patient was receiving Catapres®-TTS®-1 once weekly, which was not adequately controlling blood pressure (noted as 200/90). The dose was reviewed and changed to Catapres®-TTS®-2 once weekly. The new product was ordered, dispensed and sent to the ward. On receipt, only the overlay protective cover was applied without the active patch underneath. The patient’s blood pressure rose to 240/95 before the error was detected.

Remember: Catapres®-TTS® has two parts – the active patch which is applied to the skin and an optional inactive adhesive cover to ensure the patch will not become detached from the skin.

2. A caregiver applied a fentanyl patch to a buttock (site of pain) and later, when the patient was trying to sleep, a heating pad was applied to the same area. The patient was discovered dead two days later.

Remember: applying heat to a patch can cause lethal over-dosage.

3. A fentanyl patch was found on a child’s hand in the emergency department when they were admitted with drowsiness, shallow breathing and pin point pupils. The child’s grandmother was using fentanyl patches and had disposed of her used patch in the rubbish bin and the child had picked it out and stuck it on ‘like a plaster’. Unfortunately the patch still contained some residual fentanyl.

Remember: dispose of patches safely as there is a risk that active medicine remaining could cause harm.

Background to this alert

Many medicines are available as transdermal (skin) patches and some potential hazards with their use include the following:

- Doses are expressed in numerous ways, eg, strength per day, per hour or per patch. Frequency can vary from daily to weekly replacement and multiple strengths can be available for the one product.
- Omission errors as transdermal patches are often missing from medication histories or may go unnoticed as patients forget to mention them unless prompted and they may not easily be seen as they are often worn under clothing.
- Under-dosing when only the inactive adhesive cover and not the active patch, eg, clonidine (Catapres®-TTS®), is applied.
- Inadvertant heating of a patch by, eg, fever, forced air warmers, hot water bottles, electric blankets etc, can cause lethal over-dosage.
- Over-dosing if old patches are not removed and a second patch is applied because the initial patch is not visible or a different dose form of the same medicine is started.
- Alteration of the delivery of the medicine and/or change in therapeutic effect if the patches are cut or folded to obtain different doses.
- Risk of misuse or accidental poisoning if the patches are not disposed of appropriately, as the patch may still contain active medication after removal.
- Serious burns when patients have undergone MRI scans while still wearing certain medication patches1,2 (the aluminium backing can act as an electrical conductor).

Reference


Definition

Transdermal patch – a medicated adhesive pad placed on the skin for absorption of a time-released dose of medicine into the bloodstream.

For an electronic version of this alert, download from www.hqsc.govt.nz or contact Beth Loe: beth.loe@hqsc.govt.nz

For further information or to provide feedback on this alert, please go to www.hqsc.govt.nz

These recommendations are based on a review of currently available information in order to assist practitioners. Recommendations are general guidelines only and are not intended to be a substitute for individual clinical decision-making in specific cases.
Currently (November 2013) available transdermal patches in New Zealand (not all are funded)

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Trade name</th>
<th>Frequency</th>
<th>Specific warnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenorphine</td>
<td>Norspan® Transdermal</td>
<td>Weekly</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI</td>
</tr>
<tr>
<td>Clonidine</td>
<td>Catapres®-TTS®</td>
<td>Once weekly</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI Must be withdrawn gradually to avoid severe rebound hypertension</td>
</tr>
<tr>
<td>Estradiol</td>
<td>Estradot® Transdermal</td>
<td>Every 3–4 days</td>
<td></td>
</tr>
<tr>
<td>Estradiol</td>
<td>Femtran™ Transdermal Climalara® Transdermal</td>
<td>Weekly</td>
<td></td>
</tr>
<tr>
<td>Fentanyl</td>
<td>Durogesic® Transdermal Mylan Fentanyl</td>
<td>72 hourly</td>
<td>Use with caution in opioid-naïve patients</td>
</tr>
<tr>
<td>Glyceryl trinitrate</td>
<td>Nitroderm TTS® transdermal Minitran™</td>
<td>Usually 12–18 hours on, 6–12 hours off, change daily</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI (Nitroderm TTS® only)</td>
</tr>
<tr>
<td>Hyoscine hydrobromide</td>
<td>Scopoderm TTS® Transderm Scōp®</td>
<td>72 hourly</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI With drawal effects can occur including nausea, vomiting, balance disorders, dizziness and blurred vision</td>
</tr>
<tr>
<td>Nicotine</td>
<td>Habitrol® Transdermal</td>
<td>24 hourly</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI</td>
</tr>
<tr>
<td>Nicotine</td>
<td>Nicorette® Nicotrol®</td>
<td>16 hourly</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI</td>
</tr>
<tr>
<td>Oxybutynin</td>
<td>Oxytrol® Transdermal</td>
<td>Every 3–4 days</td>
<td></td>
</tr>
<tr>
<td>Rivastigmine</td>
<td>Exelon® Transdermal</td>
<td>24 hourly</td>
<td></td>
</tr>
<tr>
<td>Testosterone</td>
<td>Androderm® Transdermal</td>
<td>24 hourly</td>
<td>Remove prior to defibrillation, cardioversion, diathermy, MRI</td>
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</tbody>
</table>