A PRELIMINARY INVESTIGATION OF POTENTIAL INTERACTIONS BETWEEN ELECTROMAGNETIC RADIATION FROM MOBILE PHONES AND TRANSDERMAL DELIVERY SYSTEMS

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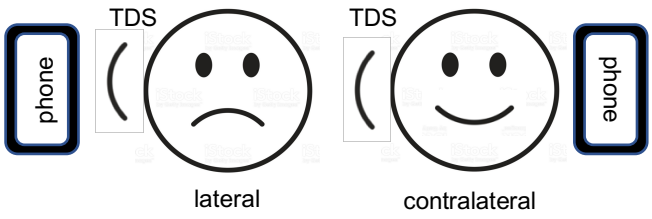
Scopolamine transdermal devices, applied behind the ear have become a routine form of control of nausea and vomiting arising from travel sickness. However, concern has been raised over the possibility of significant enhancement of scopolamine delivery due to the radio frequency or magnetophoretic effects arising from the proximity of electromagnetic emissions from personal mobile telephony devices[1]. Radio-frequency (RF) emissions have long been known to have the potential to produce heating effects (and are, indeed, the mechanism employed in microwave ovens), although the spectra and levels used in 3G and 4G systems are generally believed not to be dangerous in this respect. However, in addition, magnetophoretic enhancement of delivery of a number of different molecules has been reported in the literature[2,3]. We report here the first investigation specifically related to scopolamine transdermal systems and mobile telephony. A retrospective study of one hundred and twenty randomly selected patients who had routinely used scopolamine transdermal systems for motion sickness control was conducted (Table 1). All of these patients admitted concomitant use of a mobile phone but, of these 120 individuals, 55 (28 male, 26 female, 1 other) habitually applied the transdermal device to the contralateral side.

Table 1 Participants, usage style and potential enhancement

Sex	Total	Lateral use	Contralateral use	Potential enhancement
Male	59	31	28	1
Female	57	30	27	1
Other	2	1	1	0

Fig 1 Alternative configurations



Of those routinely using a mobile phone on the same side as the TDS only two reported any adverse effect potentially attributable to increased delivery of scopolamine. One of these was a salesman (a very heavy user of mobile telephony) who had inexplicably admitted to his wife that his trip to the South of France was not actually on company business. The other was a young female media studies student who realised that all Game of Thrones plot lines were actually based on Greek Mythology. As a precautionary measure, FAD recommends that best practice is for patients using scopolamine transdermal systems to be advised to make contralateral application (Fig.1) and/or use hands free systems whenever possible.

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