

Lymphoedema and air travel: a review

This review was contributed to by members of the Committee of the Lymphoedema Practitioners Education Group of Victoria. It was originally published in the LPEGV Newsletter September 2008.

Does the aircraft environment and other airline travel-related elements represent a risk for people with lymphoedema, or for those at risk of developing lymphoedema?

Concerns that air travel may either worsen symptoms in existing lymphoedema patients, or cause the onset of lymphoedema in those patients who are “at risk”, has given rise to a range of advice and recommendations. There has also been controversy regarding the use of prophylactic compression garments during air travel in patients who are at risk of lymphoedema and some patients are receiving conflicting advice.

Those “at risk” of lymphoedema are considered to be patients who have had lymph node removal or radiotherapy to the lymph node region as part of treatment for cancer.

Literature and rationale on using compression in air travel

There is very little evidence published on the use of compression in air travel. In the 1990s, the initial research was undertaken by Australians Judith and John Casley-Smith (1996), and was based on a retrospective survey of people with either arm or leg lymphoedema. They concluded that aircraft travel was a trigger factor for lymphoedema, but the study relied heavily on later self reporting. The Casley-Smiths (1997) hypothesized that the reduction in cabin pressure for lengthy periods may trigger lymphoedema or worsen it, but were unable to clearly demonstrate this.

Dr Peter Graham (2002) from St Georges Hospital in Sydney studied only breast cancer survivors, and found no significant difference in the rate of lymphoedema between fliers and non fliers. He concluded that domestic air travel (<4.5 hours in Australia) is low risk for breast cancer survivors. He found that the wearing of compression garments was the most common risk reduction strategy undertaken in his study (17% of fliers), but was unable to find evidence to recommend the wearing of compression sleeves during domestic flight. In fact, he commented that, with such limited evidence, wearing compression sleeves may in fact be counterproductive if they are ill-fitting.

In a recent review of the above two articles, lymphoedema therapist Mary Woods and colleagues (2008) in the United Kingdom (UK) acknowledged that such research is very difficult to undertake and concluded that available research was conflicting. Following a survey of a small number of UK lymphoedema therapists about the use of compression sleeves for their “at risk” breast cancer patients (Woods et al 2008), their advice was that if patients had ever experienced any limb swelling, then a compression arm sleeve was recommended for air travel. However, if no swelling of the arm had ever been experienced, then no sleeve was recommended but education and advice was offered.

In a review of advice given to “at risk” breast cancer patients, Australian researchers Ilsa Nielsen, Susan Gordon and Anita Selby from James Cook University in Townsville (2008), also raised concerns that some advice given to patients regarding the development of lymphoedema may cause fear and psychological distress when the area has not been researched sufficiently.

The peak body for lymphoedema in the United States, the National Lymphedema Network (NLN) has developed a Position Statement on Air Travel (2008). It is based on the premise that the decreased pressure within the plane's cabin may give rise to increased swelling in a lymphoedematous limb as tissue pressures are physiologically altered. The use of compression garments in pre-existing lymphoedema will then provide external pressure on the extremity to support favourable reabsorption and decrease the potential for fluid accumulation in the tissue.

The 2007 Dragon Boat Regatta held in Queensland provided a unique opportunity for Associate Professor Sharon Kilbreath and her colleagues from the University of Sydney, University of Queensland, University of British Columbia and University of Alberta to study the effects of short and long distance flights on arm swelling in women treated for breast cancer (Kilbreath et al 2008). Australian and Canadian dragon boaters participated in the trial, and were measured prior to boarding their flight to Australia, on arrival, and then, for some Canadian women, again two months later. The results were presented at the San Antonio Breast Cancer Symposium in the US last year. The US website www.breastcancer.org (2009) quotes the researchers as concluding that flying on an airplane is unlikely to cause or worsen lymphoedema in the group they studied. However they did caution that the results of the study may not apply to all patients as the women studied were accomplished athletes and most had previously not been troubled by lymphoedema.

The "Journal of Lymphoedema" debate section (April 2007) asked four experienced lymphoedema health professionals what advice they would give to those "at risk" of lymphoedema when they are planning to fly. Recommendations varied with regard to the use of compression for "at risk" patients, but all focused their advice on promoting healthy lymphatic and venous drainage through regular change of position, walks, breathing and circulation exercises, and avoiding dehydration. If garments were recommended, emphasis was on correct prescription, correct donning and doffing and appropriate wear schedule.

Recommendations

So what can be recommended? Firstly, it is clear that recommendations will differ for those who have lymphoedema and those who are "at risk" of developing lymphoedema. The National Lymphedema Network (NLN) in the United States has recently updated its Position Statement on Air Travel (2008). It is the NLN's position that:

- "Individuals with a confirmed diagnosis of lymphoedema should wear some form of compression therapy while travelling by air.
- Individuals at risk for developing lymphoedema should understand the risk factors associated with air travel and should make a decision to wear compression based on their individual risk factors."

(NLN position statement, p.1)

Seeking good advice is essential. In the absence of accurate evidence or clear research, it is important that the advising therapist must consider the lymphatic physiology for each individual and consider effect that aviation has on the venous and lymphatic system. The following is a general guide for the use of compression in air travel, but individual advice from an experienced health professional is recommended for those with lymphoedema or at risk of developing it.

1. Recommendations for use of compression in air travel

a. For lymphoedema patients

Generally, the papers reviewed gave similar recommendations regarding the use of compression during air travel for lymphoedema patients. These recommendations are for both leg and arm lymphoedema although it should be noted that most of the research is on breast cancer-related lymphoedema:

- Wear an up-to-date, good fitting compression garment for air travel
- Obtain garment well in advance and wear it several times before travel
- A hand piece or glove should be worn with the sleeve
- Wear the garment prior to boarding the plane, even before leaving home
- Leave the garment on until you reach your destination accommodation (or at least 1-3 hours after the flight)
- Some lymphoedema patients may benefit from the added compression of bandaging and, for this, they need specific training and advice.

b. For “at risk” patients

There are different views on compression for those who are “at risk”. We believe that, in line with the NLN Position Statement, that this needs to be an individual decision based on:

- Length of flight
- Individual risk factors

If the decision is made to wear compression, then the above recommendations listed for lymphoedema patients would apply.

2. General recommendations for air travel

A number of lymphoedema and breast cancer organizations give recommendations and advice with regard to air travel. This advice usually includes:

- Circulation exercises/ regular moving and walking about the cabin
- Avoid lifting and carrying heavy baggage; use wheelie bags and pack light
- Hydration: adequate fluid intake, avoid alcohol
- Seat assignment/leg room
- Loose fitting , nonrestrictive clothes
- Get adequate sleep
- Consider carrying antibiotics on the trip if travelling outside Australia or if a cellulitis (infection) history
- Take sunscreen, insect repellent, extra skin care.

In summary, the evidence remains scarce for the development of evidence-based guidelines in air travel, both for lymphoedema patients and for those who are “at risk” of lymphoedema. One issue is that much of the research available relates only to breast cancer patients. Another issue is

that the recommendations in the available research are often contradictory. The psychological impact of giving advice must also be considered.

It is essential that the advice given is appropriate to each individual patient's needs. Further research is needed to identify and verify the current risk reduction advice for air travel.

Information in this article is a general guide only. It is not professional advice and should not be relied upon by any person. Individual professional advice should always be sought.

References

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