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Tiffany Li, Hannah C Timmins, Fawaz M Mahfouz, Terry Trinh, Lisa G Horvath, Michelle Harrison, Peter Grimison, Michael L Friedlander, Tracy King, Matthew C Kiernan, David Goldstein, Susanna B Park. Clinical Factors Associated with Improvement in Chemotherapy-Induced Peripheral Neurotoxicity.
Oral presentation at Peripheral Nerve Society Annual Meeting, Copenhagen, Denmark, 17-20 June 2023.

Tiffany Li, Tejaswi Kandula, Michelle A Farrar, Richard J Cohn, Annemarie Bosco, Terry Trinh, Matthew C Kiernan, David Goldstein, Susanna B Park. Differences in Vincristine-Induced Peripheral Neurotoxicity Presentation Between Adults and Children.
Oral poster presentation at Multinational Association of Supportive Cancer Care Annual Meeting, Nara, Japan, 22-24 June 2023.

Giving my oral platform presentation at the Peripheral Nerve Society Annual Meeting.

Eating green tea ice cream and visiting the deer at Nara Deer Park after the conference with my colleague Fawaz (left) and supervisor Susanna (middle).

I was very lucky to be supported by Sydney Cancer Partners to attend two back-to-back international conferences this year. Firstly, the Peripheral Nerve Society (PNS) Annual Meeting in Copenhagen Denmark, followed the Multinational Association of Supportive Cancer Care (MASCC) Annual Meeting in Nara Japan. As my research focus is looking at nerve damage resulting from chemotherapy treatments, these two conferences allowed me to present my work, as well as learn from experts in the field from both the neurology and oncology fields.

At the PNS meeting, I presented my abstract on investigating clinical factors associated with improvement in chemotherapy-induced peripheral neuropathy (CIPN). There was lots of engagement from the audience and we engaged in lots of provoking discussion, both after the talk and throughout the duration of the conference. In particular, there was a lot of interest in neurofilament light chain (NfL) this year. NfL is a biomarker associated with axonal degeneration. I had discussions with international experts on how we can incorporate NfL collection in our study as a marker of early CIPN development.

Furthermore, I was also lucky to be invited to chair an education session, where two professors spoke about updates in their research fields. This not only allowed me to be involved in the planning of large international meetings, it also exposed me to invaluable networking opportunities.

Summers in Europe also meant sunsets at 10:30pm. This means that even though the conference program ended at 7:00-8:00pm each day, we still had a few hours of daylight to explore the city. In particular, the Tivoli Gardens is really beautiful and I definitely recommend visiting!

At the MASCC Meeting, I shared my oral poster session with some other very interesting presentations. There is currently a lot of interest in the gut biome and its association with other chemotherapy-related side effects. I spoke to a group from South Australia, and discussed how our shared research interest can lead to a potential collaboration.

In the recent years of zoom and online meetings, I also met a number of colleagues from Sydney who I had never met in person! It was very nice to finally meet people face to face. I met an acupuncturist researcher who we are working with and discussed how we can further our study and improve quality of life in cancer patients. There was also an increase focus on 'integrative care' for cancer patients, meaning researching and utilising alternative therapies to improve outcomes for patients. There was a lot of discussion on the need to be open minded and focussing on the patient's unique needs.

Nara was such a beautiful city. In the nearby Nara Deer Park, thousands of deers freely roam. They were (mostly) very gentle creatures, but is not shy to push for deer crackers, which we bought from local vendors.

Thank you to SCP for supporting my conference travels. Presenting my research at such exceptional international stages in my last year of PhD has allowed me to build invaluable networks to carry forward into my postdoctoral projects.

Differences in Vincristine-Induced Peripheral Neurotoxicity Presentation Between Adults and Children

Tiffany Li[1], Tejaswi Kandula[2,3], Michelle A. Farrar[2,3], Richard J. Cohn[3,4], Annmarie Bosco[5], Terry Trinh[3], Matthew C. Kiernan[1], David Goldstein[3], Susanna B. Park[1]

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Introduction

- Vincristine is a mainstay treatment of haematological cancers for adults and children with vincristine-induced peripheral neurotoxicity (VIPN) being a very common side effect.
- Symptom manifestation may be different between adults and children.
- This study aimed to investigate differences in rates of sensory and motor VIPN in adult and paediatric.

Methods

- Patients were recruited prior to vincristine commencement and assessed at mid-treatment and post-treatment follow-up (Figure 1).
- Sensory and motor neuropathy in adults was graded using patient reported numbness or tingling in hands or feet and weakness in arms or legs (both score range 0-4).
- Neuropathy in children was graded using the clinician-reported sensory and motor Balis scale (range 0-4).

Figure 1. Overview of assessment timepoints

Results

- 20 adults and 27 children were recruited to the study (Table 1).
- By mid-treatment, motor VIPN was more prevalent in children than adults ($\chi2=26.5$ $P<0.001$), with no difference in rate of sensory neuropathy ($P>0.05$). At post-treatment follow-up, motor VIPN was still more prevalent in children than adults ($\chi2=9.8$ $P<0.005$) (Figure 2).
- VIPN was reversible in children, with less motor symptoms at follow-up compared to mid-treatment ($\chi2=12.3$ $P<0.001$) but no significant decrease in adult reports of sensory and motor symptoms ($P>0.05$).

Table 1. Patient demographic information

	Adults	Children
N	20	27
Age (SD)	55.1±15.9	6.1±4.1
Female (%)	40%	59.3%
Total vincristine dose (mg/m^2) (SD)	7.6 (2.1)	11.3 (1.9)
Follow-up months post treatment (SD)	7.6 (5.4)	6.0 (4.5)

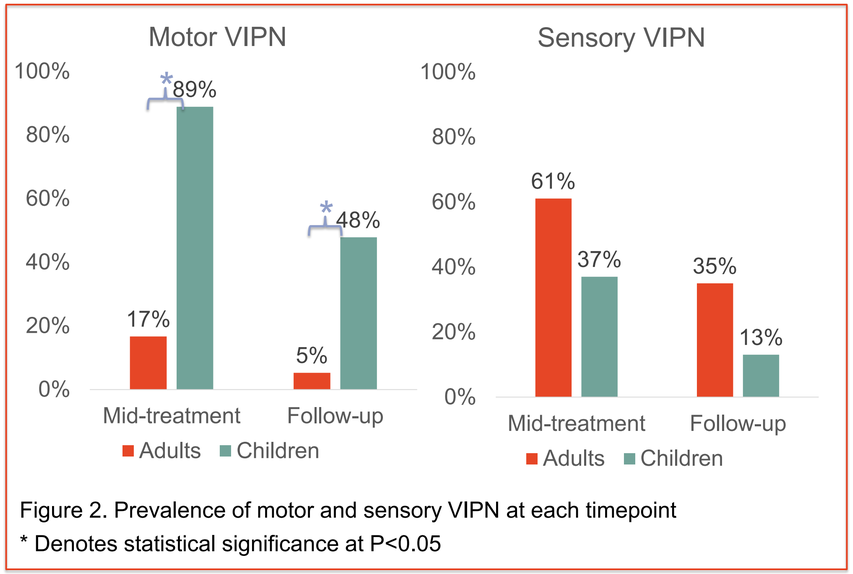

Figure 2. Prevalence of motor and sensory VIPN at each timepoint
* Denotes statistical significance at P<0.05

"Vincristine induces significantly more motor neuropathy in children than adults, with no significant difference in the rate of sensory VIPN"

Conclusions

- VIPN manifests differently between children and adults, with more motor involvement in the paediatric cohort.
- Reasons for this discrepancy may include higher vincristine doses used in the paediatric cohort, or difference mechanism of nerve damage on immature nerves.
- Support and rehabilitation for cancer survivors with VIPN need to be tailored to age and neuropathy impacts.
- Although VIPN may be reversible in children, further studies need to investigate impacts of VIPN on long-term motor development.

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