THE VALUE OF MODIFIED DAVIDSONS FIXATIVE (MDF) IN LYMPH NODE RETRIEVAL IN GASTRO-INTESTINAL (GI) CANCERS

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INTRODUCTION

The identification of lymph node involvement in GI cancer specimens is important for preoperative assessment and treatment. The identification of just 1 involved node can upstage the malignancy, prompting further evaluation and therapy. Therefore, a sudden rise in the total number of lymph nodes that are retrieved in colorectal cancer has been noted. Patients undergoing transanal total mesorectal excision have shown a significant increase in the number of lymph nodes retrieved during surgery, variability in dissector skills, inadequate fixation and the use of non-adjuvant therapy. Moreover, several studies have indicated that an increased survival is associated with increased lymph node yields (Birrerley, Gospodarowicz, & Wittekind, 2017). Adequate lymph node yields are not always achievable due to several factors, including the on-going study that has demonstrated the benefits of using MDF for lymph node retrieval in GI cancers (Kelder, W., et al., 2008). MDF treatment did not compromise further diagnostic tests (Figure 3).

AIM

Our pilot study is examining the use of proven lymph node retrieval solutions (MDF) to aid in the accurate staging of GI cancers where initial lymph node retrieval has been inadequate.

METHODS

This prospective study examined the use of MDF (Davidson's Fixative RPMH4444-O, Atom Scientific, Manchester) to retrieve extra lymph nodes from pre-dissected samples. The process used is outlined in Figure 1.

RESULTS

Optimal lymph node retrieval is possible after 6 hours of MDF treatment.

- Optimal lymph node retrieval is possible from samples treated with MDF after 6-24 hours (Figure 2).

- MDF showed up lymph nodes which were not visible prior to treatment.

- Lymph nodes as small as 1 mm are visible after 6 hours of MDF treatment.

- MDF can be incorporated into the QMC GI diagnostic pathway with no more than 24 hours impact on turn-around times (Figure 1).

MDF treatment does not affect further diagnostic tests.

- MDF treatment does not affect IHC (Figure 3).

- MDF treatment did not compromise molecular BRAF and KRAS testing and produced identical results in both MDF treated and non-treated samples from the same case.

- MDF treatment significantly increases the number of lymph nodes retrieved from GI cancer cases.

- To date we have we have accrued data on 37 GI cases ranging from upper GI to abdominoperineal resections. The majority of these cases lacked the adequate number of lymph nodes on initial assessment.

- MDF treatment facilitated the adequate lymph node retrieval in 50% of colorectal cancer cases (Table 1).

DISCUSSION

The adequate retrieval of lymph nodes in GI specimens is important for the accurate staging of these cancers. This on-going study has demonstrated the benefits of using MDF for lymph node retrieval in GI cases by:

- Providing adequate lymph node yields where initial lymph node retrieval was inadequate

- Significantly increasing the number of lymph nodes retrieved overall

- Identifying nodes as small as 1mm containing metastasis

- Identifying tumour deposits in mesenteric fat

- Not compromising further diagnostic tests such as IHC and molecular

- Having a minimal effect on turnaround times

- Facilitating accurate staging and therefore therapy

Further work is continuing to show the benefits of using MDF in upstaging GI cases in which initial lymph node retrieval has been difficult.

REFERENCES