1) INTRODUCTION

There is a national shortage of radiologists which can lead to extended waiting times for diagnostic imaging reports to be produced and increase patient waiting times for treatment. If sonographers could scan and report thyroid ultrasound, this could release radiologists for reporting sessions to work on other types of imaging reporting.

Thyroid lumps, known as nodules, are categorised into 5 groups, depending on the number of malignant features. U3 indeterminate thyroid nodules have both benign and malignant features. The current imaging pathway in the UK is a 2D ultrasound followed by fine needle aspiration (FNA). However, this patient pathway has pitfalls with FNA results not always conclusive and it has been found that up to 30% of surgeries to remove part, or the entire thyroid, have been unnecessary, as post surgical histology the nodule was found to be benign.

AIMS:

1) To increase reporting session capacity for head and neck radiologists on other areas other than thyroid ultrasound and assess feasibility for a sonographer — led thyroid scanning service.

2) To investigate whether contrast enhanced ultrasound improves accuracy for diagnosing adults with indeterminate thyroid nodules, compared to 2D ultrasound and fine needle aspiration (FNA).

This work was undertaken at Portsmouth Hospitals NHS Trust between September 2018—September 2019 in collaboration with Health Education England and King’s College London.

2) INVOLVING STAKEHOLDERS

Multiple stakeholders were identified and prioritised by undertaking a stakeholder analysis. Discussions were held with stakeholders classified as high power with high impact e.g. line manager, sonographers and a head and neck radiologist. The sonographers were sent a questionnaire to investigate their opinions on learning thyroid ultrasound, which provided positive results indicating willingness to learn thyroid ultrasound, as well as FNA which would be an additional skill as this is an essential aspect of thyroid ultrasound.

Graph 1 — Would I be willing to undertake training for head and neck ultrasound? Sonographer questionnaire results.

Graph 2 — With support and training would you be willing to learn and perform fine needle aspirations? Sonographer questionnaire results.

3) DEMAND, CAPACITY AND COST

- An audit of the number of thyroid scans over the last three years was undertaken which showed an increase in demand.

- Capacity was assessed by analysing the number of hours per reporting session which could be reallocated for a radiologist to work on other imaging. One session of four hours was calculated to be reallocated for radiologists, based on a sonographer scanning the thyroid ultrasound list this equates to 10.6% of hours available for radiologist re-allocation based on a 37.5 hour week.

- A cost comparison was conducted to analyse the cost of sonographer training including external courses, in-house training, attending MDT meetings and back cover for the department. The results showed that once competent and after 42 sessions (42 weeks x 10.5 months) the department would be saving £91.68 per session and more importantly allow the radiologist to work on other areas.

4) PROCESS MAPS

Two process maps were created, one of the current pathway and a second for a sonographer-led thyroid ultrasound service.

The main areas which were highlighted were the thyroid ultrasound requests would have to be vetted depending on complexity for a sonographer or radiologist to undertake.

A set of vetting and scanning protocols would have to be produced, I contacted a sonographer in another trust already implementing sonographer-led thyroid ultrasound to benchmark against.

5) USE OF CEUS / BEST PRACTICE REVIEW

A systematic review and meta-analysis of U3 thyroid nodules and the use of contrast enhanced ultrasound (CEUS) was performed as part of a master qualification in ultrasound.

The results showed that CEUS had too many variables for U3 thyroid nodules and the use of contrast enhanced ultrasound is not recommended solely for diagnosis, as there are too many variables. Recommendations into further research into elastography are noted.

Recommendations for further research into the use of elastography to differentiate U3 thyroid nodules were found.

6) CONCLUSIONS AND RECOMMENDATIONS

- A reporting session of four hours could be reallocated for radiologists to work on other areas of imaging if a sonographer-led service is implemented.

- There is evidence for a business case for a sonographer-led thyroid scanning service to be cost effective. However, a process map showed that vetting and scanning protocols would have to be created.

- For U3 indeterminate thyroid nodules best practice is a 2D ultrasound with FNA. CEUS is not recommended solely for diagnosis, as there are too many variables. Recommendations into further research into elastography are noted.

- LIMITATIONS—Staff shortages, lack of funding and departmental prioritisation of an out of hours consultation.

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