

PEARL: PET-based adaptive radiotherapy clinical trial

Submission date 22/07/2019	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 10/09/2019	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 13/01/2022	Condition category Cancer	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

Plain English summary of protocol

<https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/a-trial-using-a-scan-to-improve-treatment-for-oropharyngeal-cancer-during-chemoradiotherapy-pearl>

Contact information

Type(s)

Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

NCT03935672

Protocol serial number

42228

Study information

Scientific Title

PEARL: A Phase 1 trial of PET-based adaptive radiotherapy in patients undergoing radical chemoradiotherapy for Human Papilloma Virus (HPV)-positive oropharyngeal cancer.

Acronym

PEARL

Study objectives

Patients receiving biologically-based adaptive radiotherapy will have comparable two year PFS to patients undergoing standard treatment

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 07/12/2018, Wales research ethics committee 2, Castlebridge 4, 15-19 Cowbridge Road East, Cardiff, CF11 9AB; 02920785738; Wales.REC2@wales.nhs.uk), ref: 18/WA/0391

Study design

Non-randomised; Interventional; Design type: Treatment, Radiotherapy

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Human Papilloma Virus (HPV)-positive oropharyngeal cancer.

Interventions

After informed consent, HPV-positivity will be confirmed by central testing of the diagnostic biopsy specimen. Patients who have had HPV-positivity confirmed locally can undergo baseline assessment of QOL and swallowing function prior to the central laboratory results.

Patients will undergo baseline plasma and saliva tests for the presence of biomarkers.

Patients will then undergo baseline planning FDG-PET-CT scan which ATLAAS software will use to generate a GTV. The GTV will be reviewed by a team of clinical oncologists who will also take into account the diagnostic MRI, CT and clinical findings on panendoscopy.

All patients will undergo swallowing and saliva-sparing RT, delivered using Volumetric Arc Therapy (VMAT) (RapidArc), which the UK DARS clinical trial team demonstrated reduced RT dose to the pharyngeal constrictors more effectively than IMRT.

Patients will start their 6 weeks of CCRT two to three weeks following the planning scans. Cisplatin chemotherapy will be administered as per site-specific protocols. 30 daily fractions of radiotherapy will be delivered over 6 weeks.

A second FDG-PET-CT scan and repeat plasma and saliva tests will be carried out after 2 weeks of CRT and the PET assessed for residual FDG-avid disease. The GTV will be re-defined based on the avid region of the tumour. The new GTVb will continue to receive the maximum dose of 66Gy/30F but the non-avid region will receive a total dose of 60Gy/30F.

At the end of treatment, plasma and saliva tests will be repeated and will be then carried out on a 4 weekly basis until the 3-month post-treatment PET-CT.

Swallowing and QoL assessments will be repeated 4 weeks after treatment.

At 3 months post-treatment, a repeat PET-CT will be carried out to look for response. In those patients who have equivocal findings on PET, repeat imaging will be carried out 8 (+/- 2) weeks later to check for resolution.

Swallowing panel, QoL assessments, plasma and saliva samples will be repeated at 6, 12 and 24 months posttreatment. The plasma and saliva samples will also be repeated at 18 months.

Clinical follow up will be for 5 years as per standard practice.

Intervention Type

Other

Primary outcome(s)

Progression free survival at 2 years

Key secondary outcome(s))

1. Recruitment rates will be monitored annually
2. Percentage reduction in dose to organs at risk (OARs) will be recorded and plans where there was 10% or greater reduction in dose OARs categorised as significantly changed. This will be done after the second PET scan following 2 weeks of chemo radiotherapy treatment
3. Swallowing panel measurements including qualitative and quantitative swallowing assessments (MDADI, PSS-H&N, water swallow test) and feeding tube rate dependency at 1 year
4. Quality of life (QOL) (EORTC QLQ C30, HN35 and UW-QOL questionnaires). QoL will be collected at baseline, 1, 3, 6, 12 and 24 months post concurrent chemo-radiation
5. Acute and late toxicity (NCI CTCAE criteria v4.03). Collected at baseline, weekly during treatment and 3, 6, 12 and 24 months post concurrent chemo-radiation
6. Complete metabolic response rate as per PERCIST criteria on PET-CT scan (postPET) 3 months after treatment

Completion date

31/01/2025

Eligibility

Key inclusion criteria

1. Histologically confirmed squamous cell carcinoma of the oropharynx
2. Positive p16 Immunohistochemistry on local testing

3. UICC TNM (8th edition) stage T1 – T3 N0 – N1 M0
4. Multidisciplinary team (MDT) decision to treat with primary chemoradiotherapy
5. Patients considered fit for radical treatment with primary chemoradiotherapy
6. Aged 18 years or older
7. Not smoked in the last 2 years
8. Written informed consent provided
9. Patients with reproductive potential (male or female), who are sexually active during the duration of the trial consent to using a highly effective method of contraception for at least six months after the last dose of chemoradiotherapy

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Sex

All

Key exclusion criteria

1. Known HPV negative squamous cell carcinoma of the head and neck
2. T1 – T3 tumours where primary treatment with concomitant chemo-radiotherapy is not considered appropriate
3. T4 disease
4. N2 (TMN8) nodal disease
5. Distant metastatic disease
6. Current smokers or smokers who have stopped within the past 2 years
7. Diabetes mellitus
8. Any pre-existing medical condition likely to impair swallowing function and/ or a history of pre-existing swallowing dysfunction prior to index oropharyngeal cancer
9. Previous radiotherapy to the head and neck
10. History of malignancy in the last 5 years, except basal cell carcinoma of the skin, or carcinoma in situ of the cervix
11. Women who are pregnant or breastfeeding and patients with reproductive potential (male or female) who are sexually active during the duration of the trial and do not consent to use highly effective method of contraception for at least 6 months after the last dose of chemoradiotherapy
12. Tumour non-avid on PET-CT or not visible on cross sectional imaging

Date of first enrolment

15/01/2020

Date of final enrolment

30/01/2023

Locations

Countries of recruitment

United Kingdom

England

Wales

Study participating centre**Velindre Cancer Centre**

Velindre Road

Cardiff

United Kingdom

CF14 2TL

Study participating centre**Abertawe Bro Morgannwg University LHB**

One Talbot Gateway

Seaway Drive

Seaway Parade Industrial Estate

Baglan

Port Talbot

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Study participating centre**University Hospitals Bristol NHS Foundation Trust**

Marlborough Street

Bristol

United Kingdom

BS1 3NU

Sponsor information

Organisation

Velindre NHS Trust

ROR

Funder(s)

Funder type

Government

Funder Name

Cancer Research Wales; Grant Codes: .12345

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request by contacting the CTR (pearl@cardiff.ac.uk). A process is then followed to ensure request is scientifically credible, within regulatory guidelines and within patient consent. Data may be requested at any point during the trial. Application approvals will be subject to review by key members including trial Sponsor, TSC, TMG and IDMC where relevant.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes