# The impact of changing the pressure generating device in people with sleep apnoea using Continuous Positive Airway Pressure (CPAP) less than 4 hours per night

Submission date	Recruitment status No longer recruiting	Prospectively registered	
07/01/2010		☐ Protocol	
Registration date	Overall study status	Statistical analysis plan	
18/03/2010	Completed	[X] Results	
<b>Last Edited</b> 05/07/2016	Condition category	[] Individual participant data	

#### Plain English summary of protocol

Not provided at time of registration

#### Contact information

#### Type(s)

Scientific

#### Contact name

Dr Ian Smith

#### Contact details

Respiratory support and sleep centre Papworth Hospital NHS Trust Papworth Everard Papworth Everard United Kingdom CB23 3RE

#### Additional identifiers

**Protocol serial number** N/A

# Study information

Scientific Title

The impact of changing the pressure generating device in people with sleep apnoea using Continuous Positive Airway Pressure (CPAP) less than 4 hours per night: a randomised controlled crossover trial

#### **Study objectives**

Does changing to Bi–level positive airway pressure (Bi–level PAP) support increases usage in obstructive sleep apnoea (OSA) patients who have suboptimal compliance with fixed continuous positive airway pressure (CPAP) due to pressure intolerance?

The most effective treatment for symptomatic, moderate to severe OSA is with CPAP. To derive optimal benefit it is recommended that CPAP should be used for at least 4 hours per night. However, only 46-83 % of individuals use it for more than 4 hours every night. Different mechanical interventions (Auto positive airway pressure, Bi-level Positive airway pressure, and expiratory release positive airway pressure) have failed to show any significant improvement in compliance. Most of these studies have studied unselected subjects first initiating therapy. It is possible that subjects who after all simple measures to improve compliance have been addressed are still non-compliant may show a demonstrable improvement with a change of mode of pressure delivery. In this study we will evaluate the role of Bi-level PAP in OSA patients who remain poorly compliant with CPAP (despite appropriate interventions to improve local side effects and/or who complain of pressure related problems).

#### Ethics approval required

Old ethics approval format

#### Ethics approval(s)

Cambridgeshire 2 Research and Ethics Committee (REC), April 2009, ref: 09/H0308/68

#### Study design

Single-centre two-period two-arm randomised controlled crossover group trial

#### Primary study design

Interventional

#### Study type(s)

Treatment

#### Health condition(s) or problem(s) studied

Obstructive sleep apnoea

#### **Interventions**

The study will have a two-period, two-treatment crossover randomised controlled trial design. Patients with average CPAP use less than 4 hours per night who meet the inclusion and none of the exclusion criteria will be randomised to either receive a Bi-level positive airway pressure (Bi-PAP) device first or to receive a brand of fixed CPAP machine different from the one they have used previous to entering the study. They will have a baseline measure of CPAP compliance, daytime sleepiness and quality of life. Both groups will receive a similar level of continuing clinical support by the CPAP practitioners and Respiratory Support and Sleep Centre (RSSC) nurses (24 hour telephone helpline, early clinic review and advice if there is any problem) as per the standard clinical care at our centre.

They will then be reviewed at 4 weeks with repeat measurements of compliance, sleepiness and quality of life.

For the second period, those that received CPAP in the first period will get Bi-level PAP and vice versa. They will go home with the advice to start using the new device after 2 weeks. Until that time they will stay on their initial CPAP. This will give them a washout period of two weeks. They will then be followed up for the study at 10 weeks with repeat measures of CPAP compliance, daytime sleepiness and quality of life indices to look for any measurable changes. Patients will be selected from a cohort of CPAP users who are followed up at Papworth hospital.

#### Intervention Type

Device

#### Phase

Not Applicable

#### Primary outcome(s)

CPAP compliance (measured as average CPAP use in hours per night)

#### Key secondary outcome(s))

- 1. Improvement in generic quality of life index Short form 36 (SF-36)
- 2. Improvement in sleep apnoea quality of life index (SAQLI)
- 3. Epworth sleepiness scale score (ESS)
- 4. Side effects
- 5. Comfort level
- 6. Patient preference for different device
- 7. Changes in objective measure of excessive daytime sleepiness (OSLER test)

#### Completion date

30/04/2010

# **Eligibility**

#### Key inclusion criteria

- 1. Diagnosed OSA (AHI greater than 4 per hour)
- 2. On CPAP for at least 6 weeks with average use less than 4 hours per night
- 3. Intolerant of CPAP despite ensuring pressure minimised to least effective, mask fit and humidification reviewed as appropriate

#### Participant type(s)

**Patient** 

#### Healthy volunteers allowed

No

#### Age group

Adult

#### Sex

All

#### Key exclusion criteria

- 1. Refuse informed consent or unable to give consent.
- 2. AHI less than 5 per hour off CPAP.
- 3. Moderate to severe airflow obstruction (Forced Expiratory Volume in 1 second [FEV1] / Forced Vital Capacity Percentage [FVC%] less than 60%).
- 4. Central sleep apnoea (central events more than 50% of all the apnoeas / hypopnoeas).
- 5. Decompensated congestive heart failure on clinical examination.
- 6. Hypercapnia (PaCO2 > 6.5 KPa).
- 7. Previous exposure to Bi-level positive airway pressure support.

### Date of first enrolment

01/04/2009

#### Date of final enrolment

30/04/2010

#### Locations

#### Countries of recruitment

United Kingdom

England

# Study participating centre Papworth Hospital NHS Trust

Papworth Everard United Kingdom CB23 3RE

# Sponsor information

#### Organisation

Papworth Hospital NHS Foundation Trust (UK)

#### **ROR**

https://ror.org/01qbebb31

# Funder(s)

#### Funder type

Hospital/treatment centre

#### Funder Name

Papworth Hospital NHS Foundation Trust (UK) - (Local R& D ref: PO1349)

#### Funder Name

B and D electromedicals (UK) - limited funding

# **Results and Publications**

Individual participant data (IPD) sharing plan

#### IPD sharing plan summary

Not provided at time of registration

#### **Study outputs**

Output type	Details	Date created Date added	d Peer reviewed?	Patient-facing?
Results article	results	01/06/2015	Yes	No
Participant information sheet	Participant information sheet	11/11/2025 11/11/202	5 No	Yes