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Ablation of ventricular arrhythmias at Waikato Hospital

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Background

Catheter ablation can be an effective treatment strategy for patients with ventricular tachycardia (VT) or frequent premature ventricular complexes (PVCs). The goal is to improve quality of life as well as mortality.

Objectives

We aimed to characterise our population of patients who have undergone ablation for ventricular arrhythmias over the past six years, and report outcomes of this procedure.

Methods

We analysed data from consecutive patients who underwent VT/PVC ablation from January 2014–February 2020. Medical and cardiac implantable electronic device records were reviewed.

Results

A total of 121 procedures were performed in 100 patients. There were 73 males and 27 females, mean age 60±13 years. The aetiology of ventricular arrhythmias was ischaemia in 33 (33 males), non-ischaemic in 63 (38 males) and mixed aetiology in four (two males). A single procedure was performed in 83 patients, 12 patients had two procedures and five had three procedures (17 patients had ≥1 procedure, giving a 14% redo rate). No ablation was done in four

patients (inability to locate PVC origin in a patient with multiple different morphologies, inadvertent aortic puncture with no sequelae, PVC focus adjacent to His bundle, cardiogenic shock during anaesthesia). Endocardial ablation was done in 96 patients and three patients also underwent epicardial ablation (one patient underwent two epicardial procedures including one open chest procedure). General anaesthesia was used in 46% of cases, conscious sedation was used in 54%. Sixty-two percent were elective procedures and 38% were done acutely. The overall acute success rate was 91%, falling to 75% at three months, 73% at six months and 68% at 12 months. Average procedure time was 180±64 minutes, fluoroscopy time 15±12 minutes, ablation time 22±19 minutes. The 30-day complication rate post-procedure was 5.8%, occurring in seven patients. These complications were two deaths, three pericardial effusions requiring pericardiocentesis, one stroke with full recovery, one groin haematoma which did not require intervention. During the analysis period nine patients died during follow up: Mortality was 4.4% at three months, 6.3% at six months, 9.1% at 12 months.

Conclusion

In patients with ventricular arrhythmias, ablation is a safe and feasible option to reduce defibrillator therapy, hospital admissions, heart failure and mortality, but repeated procedures are often needed. Our results are comparable to international standards.

Pain relief options in labour: remifentanil PCA vs epidural

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Objective

Remifentanil is commonly used in obstetrics due to its fast metabolism time. It is an attractive option for IV patient-controlled analgesia (PCA) in labour. We compared the efficacy of IV Remifentanil PCA with epidural during labour.

Method

Using a retrospective approach, we identified a total of 285 patients requiring Remifentanil PCA presenting to Waikato delivery suite between the years 2017 to 2019. The primary outcome measured was an assessment of patients requiring further epidural analgesia post-Remifentanil PCA. Secondary outcomes included number requiring caesarean section, instrumental use and number with a PPH or tear. This was compared to 285 patients requiring epidural analgesia.

Results

We found 24% (68 of 285) of Remifentanil patients required an epidural post-PCA for further pain relief. Of the epidural patients, 1.75% (5 of 285) required a second epidural after failing their first (RR 13.6, 95% CI 5.57–33.22, P=0.0001, P<0.05). Nineteen percent (53 of 285) of Remifentanil patients required caesarean section delivery compared to 31% (89 of 285) of epidural patients (RR 0.595, 95% CI 0.442–0.802, P=0.0006, P<0.05). Four percent (12 of

285) of Remifentanyl patients required instrument use compared to 11.2% (32 of 285) of epidural patients (RR 0.375, 95% CI 0.197–0.713, $P=0.0028$, $P<0.05$). 2.8% (8 of 285) of Remifentanyl patients had a large PPH or tear compared to 3.5% (10 of 285) of epidural patients (RR 0.800, 95% CI 0.320–1.998, $P=0.632$, $P>0.05$).

Conclusion

The results of this study confirm some Remifentanyl PCA patients require epidural analgesia progression in labour. The rate of instrumental delivery and caesarean section was almost halved in the Remifentanyl PCA group when compared to the epidural group. This finding supports the use of Remifentanyl PCA in labour as an alternative to epidurals.

A randomised controlled trial of Harti Hauora Tamariki, a holistic whānau-centred approach, on the paediatrics wards at Waikato Hospital

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Problem

Too many tamariki Māori are returning to hospital within one year of admission to Waikato Hospital.

Solution

Harti Hauora Tamariki is a whānau Māori-centric multi-level programme to support wellbeing via engagement, needs assessment using a screening tool and provision of, or navigation to wellbeing services.

Method

We conducted a randomised-controlled trial recruiting over 980 whānau with a child (aged 0–4) admitted to the acute paediatric ward at Waikato Hospital. Half were randomised into the intervention group (Harti) and half had usual care.

Results

Quantitative results are not yet available. However, qual-

itative interviews have found that families appreciate the tool and have good engagement with staff and services they are referred to.

The psychosocial needs of cancer patients in the Waikato region

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Cancer is a major health concern in New Zealand. A cancer diagnosis is associated with elevated psychosocial distress that negatively impacts on quality of life. The Ministry of Health (MOH) recognises the importance of screening for psychosocial distress and providing psychosocial support as part of cancer care, yet screening is underutilised, resulting in a number of patients with unmet psychosocial needs. We investigated the characteristics and psychosocial support needs of cancer patients in the Waikato region who were referred to the Cancer Psychological and Social Support Service (CPSSS) at the Waikato District Health Board (DHB) between 2016 and 2018. Data from the CPSSS were compared with Waikato regional data obtained from the New Zealand Cancer Register (NZCR). Only 6% of cancer patients in the region were referred to CPSSS. Age, gender, ethnicity and type of cancer were all significant factors associated with the likelihood of receiving a referral. Patients with breast, haematological and head and neck cancers were the most likely to be referred, as were younger patients and females. Males and Māori were less likely to be referred. The most common reasons patients sought a psychosocial referral were psychological/emotional distress, family concerns and fear of treatment. Psychosocial distress is present in cancer patients in the Waikato, and the CPSSS plays a vital role in supporting the psychosocial needs of cancer patients.

Aortic size index predicts survival in patients with abdominal aortic aneurysm

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Objective

Most factors influencing abdominal aortic aneurysm (AAA) survival are well documented, however some predictors such as BMI have produced contradictory results. It is well established that increased AAA diameter is associated with increased mortality and rupture. Our hypothesis was to evaluate if the effect of AAA size relative to body size has an impact on survival after AAA repair.

Methods

This was a retrospective study evaluating patients with a threshold (>5cm) AAA from Auckland City Hospital and Waikato Hospital. Multisource data was used to acquire patient information, including body size measurements close to the time of surgery. Logistic regression and Cox-proportional models were used to analyse the 30-day mortality and late survival, respectively.

Results

There were 1,060 patients, with a median age of 75 years and 77% were females. AAA diameter and body size measurements were not associated with 30 day mortality. The median follow-up was 4.5 years. AAA diameter was a risk for late survival (Hazard ratio [HR]: 1.18, 95% confidence interval [CI]: 1.06–1.30). Increased weight, body mass index and body surface area were all protective against mortality (HR: 0.99, CI: 0.98–0.99; HR: 0.98, CI: 0.5–0.99; HR: 0.46, CI: 0.25–0.83). ASI values ranged from 1.4–7cm/m² and increased ASI was associated with increased mortality (HR: 1.4, CI: 1.2–1.7).

Conclusion

Patients with a large AAA and a smaller BSA had worse overall survival. Aortic size index may be a better predictor of survival than using absolute AAA diameter and body size measurements separately.

Metformin adherence in Waikato patients with type 2 diabetes, and association with HbA1c levels

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Aims and objectives

Many patients with type 2 diabetes (T2D) continue to have poor glycaemic control, and this has been associated with poor medication adherence. The aim of this study was to assess patient adherence to metformin, the gold standard first-line treatment.

Methods

Prescription, clinical and demographic data were collected from the patient management system of 10 different general practices in the Waikato region for Sept 2016–March 2018. Data were extracted for all repeat metformin users aged >15 years who had a diagnosis of T2D of >12 months. NHI-matched dispensed medication data was obtained from the Pharmaceutical collection (PHARMS). Good metformin adherence was defined as a medication possession ratio (MPR) of >0.8 and was assessed 1) using PHARMS data alone and 2) by comparing prescribing to dispensing information.

Results

One thousand five hundred and ninety-five patients were included for analysis (median age of 65 years; 55.5% male; 52.0% urban), including 49.0% receiving metformin only and

12.0% receiving metformin and insulin. Overall, 77.6% of patients had a metformin MPR of >0.8 and the median time between prescriptions was 95.4 days. The proportion of patients meeting the MPR target was significantly higher in NZ European (vs Māori and Pasifika), in those who had a CVD-related hospital admission and in older patients (all $p < 0.001$). For patients who received 5–7 metformin prescriptions during the study period (full 90-day prescribing adherence; $n = 1,127$) 86.2% were fully adherent with 100% of all metformin prescriptions being dispensed. Prescription adherence did not differ by gender, ethnicity or rurality. HbA1c levels were significantly higher in patients with a MPR <0.8 and in those who were <100% adherent to prescriptions.

Conclusions

In general, adherence to metformin was good, though inequities in prescribing do exist. Poorer glycaemic control was associated with reduced medication adherence.

Preventing ventilator-induced lung injury

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Background

Mechanical ventilation is commonly used in intensive care units for supplying supplementary oxygen to critically ill people. However, mechanical ventilation itself often damages the recipient's lungs. This damage is termed ventilator-induced lung injury (VILI) and is associated with poor clinical outcomes. There are currently no effective pharmacological treatments for VILI prevention

or treatment in routine clinical use.

Method

This study investigated two drugs aimed at therapeutic targets in mechanically ventilated lungs using an isolated perfused rat lung preparation (Hugo Sachs Elektronik/Harvard Apparatus IPL-2). Respiratory parameters were recorded using ADInstruments PowerLab and LabChart software. A hyperbaric model of VILI was developed. Lungs were maintained at normal tidal volume for 10 min using positive pressure ventilation (between +3 to +15 cmH₂O), and then hyperinflated by increasing the peak end-inspiratory pressure to +30 cmH₂O for a period of 1 hour. After this, a 90-minute measurement period was undertaken at normal negative breathing pressures (-2 to -12 cmH₂O). In treatment experiments ($n = 7$), the drug was added to the recirculating perfusate seven minutes prior to lung hyperinflation. Findings were compared to determine whether drug treatment reduced the severity of VILI.

Results

The VILI model optimisation was successful, with hyperinflation resulting in an increase in tidal volume from 2.0–4.8mL and a corresponding steady rise in lung weight by 16% associated with visible oedema in the lower lung lobes. The abnormal increased lung weight was sustained over the following 90-minute normal ventilation period as well.

In the drug treatment group the weight gain and tissue oedema were significantly less severe in the hyperinflation injury period and normal ventilation periods after drug treatment.

Conclusion

It was found possible to pharmacologically attenuate the severity of experimental VILI using biochemical methods.

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URL:

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