Abstract

Objectives:
1. Examine whether there are ethnic disparities in myringoplasty rates in New Zealand.
2. Analyse whether there are ethnic disparities in myringoplasty outcomes in New Zealand.

Methods: Prospective cohort of 167 consecutive myringoplasty surgeries performed at the only public regional hospital in a district of New Zealand between 2003-2012. Basic patient demographics including ethnicity, and nature of perforation (size, location and active infection) were recorded preoperatively. Primary outcomes were of successful perforation repair on postoperative review, hearing improvement on pre and post-operative audiograms, and prevention of recurrent infections of the middle ear.

Results: In our cohort, the native Maori of New Zealand have disproportionately high incidence of myringoplasty surgery than the majority Europeans (28.7/100,000 vs 6.2/100,000 persons/year, p=0.0001). Maori patients tend to be younger on average (16.80 vs 23.4 years old, p=0.001) with larger perforations (25.9% vs 24.3%, p=0.029), but there were no significant ethnic disparities in primary surgical outcomes.

Conclusions: Our study supports the hypothesis that native Maori of New Zealand have a greater burden of middle ear disease compared to the majority Europeans, but shows that Maori are just as likely to benefit from myringoplasty surgery. Further population-level studies are required to verify this.

Methods and Materials

Prospective cohort of 167 consecutive myringoplasties on 144 patients were performed at Hasting’s Memorial Hospital from 17th September 2003 to 20th June 2012. Data collected by two surgeons via predetermine proforma on day of operation, and at first postoperative clinic. Three primary outcomes collected were whether the tympanic membrane was intact and the ear was dry via otoscopy by a consultant ENT surgeon, and preoperative and postoperative air conduction audiometry at 1000, 2000 and 4000kHz. Data was independently collated by a dedicated audit administrator and statistical analysis was performed by a junior doctor in the department. Independent variables collected included basic demographic data (age, gender), intraoperative findings (disease activity, ossicular chain status, perforation site and size, surgical approach, graft type) and post operative complications. All patients had clinical follow up and 159 (82.2%) had complete audiological follow up.

Patient population

Hastings Memorial Hospital is the secondary hospital for Hawke’s Bay District Health Board, which is a free access, public healthcare organisation that serves a catchment population of 155,000.

Discussion

Maori patients undergoing myringoplasty are younger with larger perforations compared to their non-Maori counterparts. Despite this, they have successful repair of perforations in 89.5% of cases, comparable to the non-Maori. This rate is comparable to international studies which report success rates of 70-80%. In comparison, much lower rates are reported in studies of rural Aboriginal Australians (49%) compared to urban Australians (70-90%). Part of this difference may be that the ease of follow up and treatment of our mostly urban Maori compared to the rural communities in Australia where up to a third of indigenous children have tympanic membrane perforations. Accounting for differences in age and perforation size, there were no ethnic differences in the three primary outcomes. The only significant factor in success of both hearing and perforation repair was perforation size. This is in keeping with previous studies.

This is the first prospective case series examining myringoplasty outcomes between Maori and non-Maori of New Zealand. All patients underwent complete clinical follow up and more than three quarters received complete audiological work up.

Conclusions

Indigenous Maori of New Zealand are more likely to undergo myringoplasty than the majority Europeans. Despite this discrepancy in disease burden, both ethnicities are equally likely to benefit from this procedure. Further studies could examine what differences in the disease process account for such differences.

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References