



Comorbidities in Patients Requiring Dentoalveolar Surgery in Day Care Procedures in Two Different Hospitals: A Comparative Study

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Abstract

Background: This study was performed to determine any management variations in subset of patients admitted to the two different hospitals and also to assess the prevalence and type of comorbidities in each group of surgical patients.

Methods: Patients who consented to have dentoalveolar surgery in day care facilities from 1st March 2018 to 28th Feb 2019 were included in this study. Basic demographic data was also recorded such as sex, age and type of operation including their co-morbidities including hypertension, diabetes mellitus, hepatitis, anemia, gastrointestinal disorders, cardiac disorders, renal disorders and blood dyscrasias.

Results: There were 94 patients in Holroyd and 167 patients in Strathfield Private Hospital enrolled into this study, with more female patients at Holroyd (M:F=44:50) whereas there were more male patients at Strathfield (M:F=90:77). The majority of patients were aged between 11 years and 30 years in both hospitals but there is a statistically significant difference in the age of the patients, with those being admitted to Strathfield being older as compared to Holroyd Private Hospital (P=0.004). There was no statistical difference in the number of co-morbidities for the patients in the two hospitals (P=0.13). The most common co-morbidity in both hospitals was hypertension.

Conclusion: To conclude, only half of our maxillofacial patients are healthy, young adults having 4 wisdom teeth extracted. The majority of our patients are suitable to be done in day surgery center. Patients are suitable to be done in a day surgery center. There are no major differences in the patients being admitted to the smaller, peripheral “day” hospital as compared to the larger, better equipped and supervised hospital.

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Introduction

Patients visiting dental office for extraction of teeth may present with different comorbidities, which sometimes may be unknown to them, or they may be on a complex range of medications for their medical conditions [1,2]. The aim of providing dental treatment is to provide safe and effective management without causing any medical emergency [3]. Dental treatment may sometimes be modified according to the comorbidity of the patient, and sometimes consultation with the medical specialist may be needed. Proper medical history taking is the key to safe patient management [4]. Moreover, modifications of dental management due to compromising medical conditions are necessary to provide better and safer oral care for patients [5].

Dentoalveolar surgery especially the surgical extraction of teeth is one the commonest types of surgery performed in Australia. Our surgical and anesthetic team performs this type of surgery at two locations: Strathfield Private Hospital and Holroyd Private Hospital. These two hospitals vary in their location as well as their facilities. Strathfield Private Hospital is a multispeciality teaching hospital with Cardiac and Intensive Care Unit. Holroyd Private Hospital is a day care hospital with geriatric rehabilitation unit.

Dentoalveolar patients have always been thought to comprise of young, healthy individuals with very few co-morbidities [6,7]. To substantiate these views, this study was performed to determine any differences in subset of patients admitted to the two different hospitals and also to assess the prevalence and type of co-morbidities in each group of surgical patients.

Table 1: Results of audit.

	Tuesday (Holroyd hospital)	Saturday (Strathfield private hospital)
Total number of lists	23	28
Total number of patients	94	167
Male	44	90
Female	50	77
Lesion		2
Cyst	4	12
1 tooth	11	21
2 teeth	11	30
3 teeth	11	19
4 teeth	52	78
5 teeth	4	7
5-10 teeth	5	7
>10 teeth		2 (13,23)
Age 0 years-10 years	0	4
11/20/2019	29	32
21-30	27	51
31-40	12	12
41-50	5	15
51-60	7	13
61-70	7	12
71-80	4	17
81-90	3	10
91-100		1 (91 years)
1 Co-morbidity	31	35
2 Co-morbidity	8	10
3 or more co-morbidities	11	32
lhd/heart failure/valvular heart disease	6	14
Arrhythmias	4	19
Hypertension	12	28
Stroke	3	5
Parkinsons	2	2
Neuromuscular	4	4
Copd	1	2
Obstructive sleep apnoea	1	7
Renal	0	0
Liver	0	0
Diabetes	3	4
Rheumatoid	0	0
Gout	0	2
Malignancy	0	5
Smoker	10	5
Psychiatric	9	11
Morbid obesity (bmi ≥ 40)	2	5
Hypothyroidism	1	5
Gor	10	17

Infectious disease	2	3
Illicit drug use	2	3
Asthma	10	11
Osteoporosis	2	5
Coagulation disorder	1	5 (one factor ix deficiency, two factor v leiden mutation)
Osteoarthritis	0	5
Previous dvt	0	2
Epilepsy	0	2
Other	6 (a)	12 (b)

Material and Methods

This study was conducted at two different hospitals, Strathfield and Holroyd Private Hospital, Sydney, Australia. Holroyd Private Hospital being a free-standing basic district hospital with no resident on duty and no Intensive Care Unit, whereas Strathfield Private Hospital has multispecialty including ICU, resident on duty and cardiology support and is more centrally located. All patients who consented to have dentoalveolar surgery in day care facilities from 1st March 2018 to 28th Feb 2019 were included in this study. The patient’s medical and drug history was recorded to find out the prevalence of different medical conditions including hypertension, diabetes mellitus, hepatitis, anemia, gastrointestinal disorders, cardiac disorders, renal disorders and blood dyscrasias. Basic demographic data was also recorded such as sex, age and type of operation.

Results

There were 94 patients in Holroyd and 167 patients in Strathfield Private Hospital enrolled into this study, with more female patients at Holroyd (M:F=44:50) whereas there were more male patients at Strathfield (M:F=90:77) (Table 1). The majority of patients in both hospitals were having 4 teeth surgically extracted. The majority of patients were aged between 11 years and 30 years in both hospitals but there is a statistically significant difference in the age of the patient being older in Strathfield as compared to Holroyd Private Hospital (P=0.004) using student’s T-Test. Approximately half of the patients in both hospitals had no known co-morbidities. Holroyd was more likely to have patients with just one co-morbidity (33% vs. 21%) whereas Strathfield was more likely to have patients with 3 or more co-morbidities (19% vs. 12%). There was no statistical difference in number of co-morbidities for the patients in the two hospitals (P=0.13).

The most common co-morbidity in both hospitals was hypertension. In Holroyd, the next most common co-morbidities were smoking, gastro-esophageal reflux and asthma. In Strathfield,

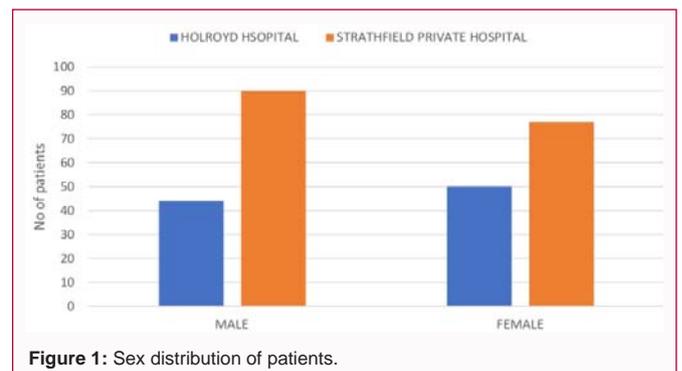


Figure 1: Sex distribution of patients.

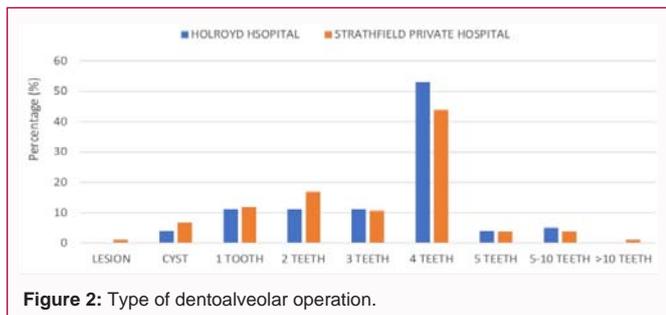


Figure 2: Type of dentoalveolar operation.

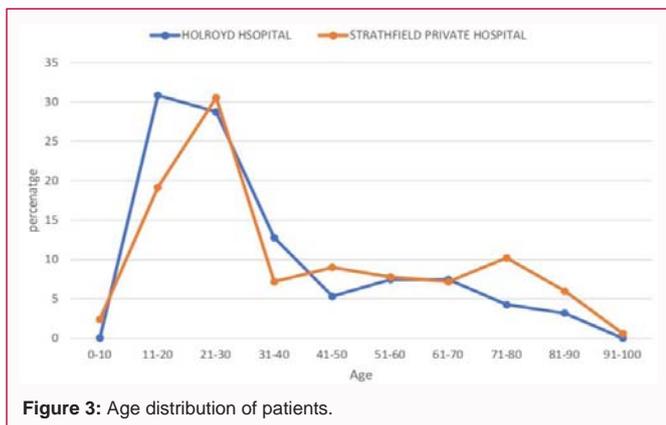


Figure 3: Age distribution of patients.

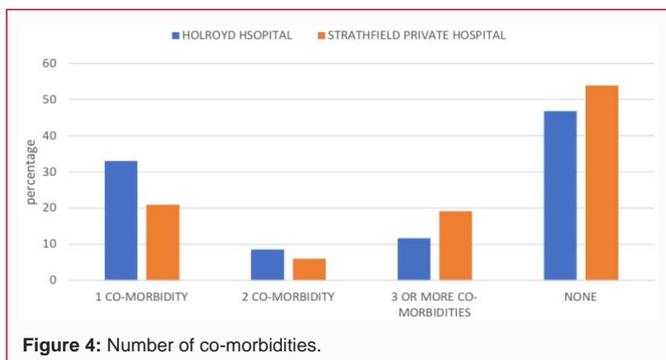


Figure 4: Number of co-morbidities.

the next most common co-morbidities were ischemic heart disease, arrhythmias (usually a trial fibrillation) and gastro-esophageal reflux.

Discussion

It is a common belief that dentoalveolar surgery is performed on healthy, young adults with 4 wisdom teeth to be extracted. We performed this study to see how accurate this was. We perform surgery at two dissimilar sites. Holroyd Private Hospital is a small peripheral hospital with limited after-hours medical cover. It does have the ability for patients to stay overnight but we use it purely as a day-surgery unit. Strathfield Private Hospital is a more centrally located hospital with Intensive Care Unit and 24-h medical backup. According to ANZCA guidelines, we only admit ASA I or II patients to Holroyd whereas we admit patients of any ASA grade to Strathfield Private Hospital. Also, any patients that may require admission to stay overnight, is admitted to Strathfield Private Hospital. With these conditions, we would assume that there would be differences in the types of patients we admitted to each hospital. The surgical lists at Strathfield (5.96 patients per list) had more patients than those at Holroyd (4.09 patients per list). This is easily explained by the fact that only relatively healthy patients could be admitted to Holroyd,

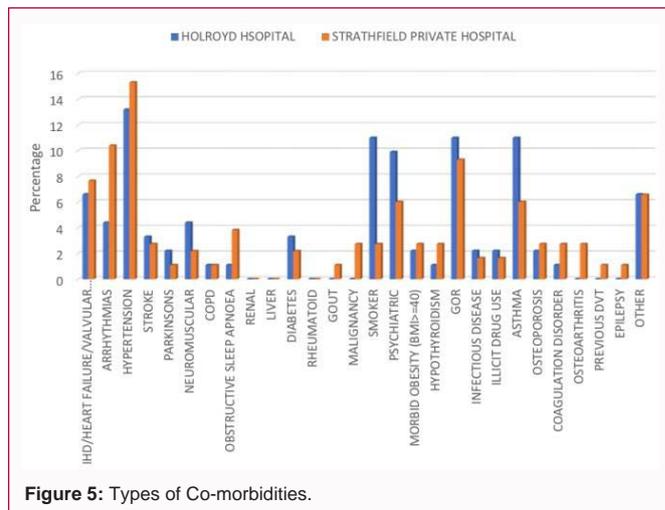


Figure 5: Types of Co-morbidities.

Strathfield Private is more centrally located and we operated at Strathfield on Saturdays which is often more convenient for patients than the Tuesday operating list at Holroyd.

The sex distribution is interesting (Figure 1). There tended to be more females operated on in Holroyd (M:F=44:50), whereas Strathfield was skewed towards the male sex (M:F=90:77). In Australia, the sex ratio is close to 1:1 until above the age 70 years. When there is higher male mortality. The majority of the operations were for 4 teeth, usually 4 wisdom teeth, as expected. Excision of cysts and lesions were usually performed at Strathfield. Otherwise, there was minimal difference between the 2 hospitals as to type of operation (Figure 2). The age distribution of the patients can be seen in (Figure 3). There is a significant difference in the distribution of ages between the two hospitals (P=0.004). The patients at Holroyd tend to be younger than the patients at Strathfield. Our oldest patient was a 91 years. Patient at Strathfield Private Hospital. Older patients have more comorbidity, higher ASA grade, may need to stay overnight for social reasons and therefore are more likely to be admitted to Strathfield Private Hospital. The age distribution is very different to that of both Australia in general and hospital admissions in Australia [8,9]. The majority of our patients are in the 11 years to 30 years cohort. As can be seen in Figure 4, most of our patients are healthy but half have at least one comorbidity and 17% have 3 or more co-morbidities. This is higher than expected. The Strathfield Private patients are more likely to have multiple co-morbidities which is to be expected with their ASA class and increased age but there was surprisingly no statistically significant difference between the two hospitals (P=0.14). The most interesting differences between the two hospitals and our patients in general are their individual co-morbidities as can be seen in Figure 5.

In Australia, about 4.8% of the population has ischemic heart disease or heart failure [10]. In both Holroyd and Strathfield, approximately 7% of our patients reported this condition, which is considerably higher than the national average and unexpected for our relatively “healthy” patients. The prevalence of a trial fibrillation in Australia in 2014 was estimated at 2.5 to 4% in adults 18 years and over [11]. Almost all the arrhythmias encountered in our patients were a trial fibrillation with Holroyd’s 4% being in line with the average but Strathfield having 10% was more than double and was due to the fact that we tend not to cease their anticoagulants anymore and so their risk of intraoperative and postoperative bleeding is increased. This morbidity is more easily observed and treated at a bigger institution

such as Strathfield Private Hospital. Hypertension was the most common co-morbidity found in our patients. 10.6% of the Australian population in 2017-2018 was reported to have hypertension and so, this was not unexpected [10].

Considering that about 9% of women and 25% of men in Australia have clinically significant obstructive sleep apnea, it is surprising that our patients rarely admitted to having this medical problem [12]. I would hypothesize that it is more an unrecognized co-morbidity rather than its incidence being so low in our surgical population. Diabetes affects 4.9% of Australians and has been increasing steadily [10]. However, only 5 patients in total reported having Diabetes in our study. In Australian society, due to its relatively high prevalence, medical practitioners are acutely vigilant for its diagnosis, making under-diagnosis unlikely. Diabetes has a wide age spectrum and there is no clear reason why our patients should have such a low prevalence. Smoking has been in decline in Australia. Since 1995, it has decreased from 23.8% to 13.8% in 2017-2018. The 11% of our patients smoked at Holroyd whereas only 3% were smokers at Strathfield Private. This probably reflects the socioeconomic status of the patients in the 2 hospitals. Psychiatric and behavioral disorders affect about 20.1% of the Australian population [10]. The most common psychiatric disorders in our population were depression, bipolar, schizophrenia and ADHD. The prevalence of 10% (Holroyd) and 6% (Strathfield) is certainly an under-reporting. Patients often had to be prompted a few times to admit to these conditions. It is not within the scope of this study to determine if that was due to the patient feeling embarrassed, not considering it a "medical" condition or thinking it was not significant. Morbid obesity (BMI>40) is an ever-increasing issue in Australia. Currently 31.3% of Australians are categorized as obese. 2% of the patients at Holroyd were morbidly obese (BMI>40) and 3% at Strathfield. These numbers are expected to only increase. Strathfield Private Hospital as expected had some of the more unusual comorbidities such as Factor IX deficiency, malignant hyperthermia, congenital splenomegaly, recurrent laryngeal palsy and pulmonary fibrosis secondary to radiotherapy.

Conclusion

Only half of our dentoalveolar patients are healthy, young adults having 4 wisdom teeth extracted. There is a wide age spectrum to our patients and many of them have significant medical issues that require significant medical work-up and monitoring. The majority of our patients are suitable to be done in a day surgery center. There are

not major differences in the patients being admitted to the smaller, peripheral "day" hospital as compared to the larger, better equipped and supervised hospital. There are, however, quite marked differences between our patient population and the Australian population in general, some of which is to be expected but some differences were surprising and unfortunately not within the scope of this audit to determine the exact reason why.

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