

Fragility fracture management and FLS models in South Africa and Israel

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Abstract

Osteoporosis is a common disease of the elderly. Many patients at high risk are neither identified nor treated. A Fracture Liaison Service is a coordinated model of care for secondary fracture prevention. Several national quality indicators have been published in each country to improve surgical treatment and osteoporosis medical treatment. Fracture Liaison Services in both countries have been created by local clinicians with different models depending on the medical geographic locations of patients and the local setup. The objective of this review is to describe the national guidelines and the current clinical treatment models for fragility fractures in South Africa and Israel. Successes and barriers to successful implementation have been identified and are summarized.

Keywords: fracture, liaison, osteoporosis, service

1. Introduction

The most devastating result of osteoporosis is fracture. Most patients at high risk, who have already had at least 1 osteoporotic fracture, are neither identified nor treated.^[1] In 2012, the American Society for Bone and Mineral Research task force published its recommendation for closing that gap through a fracture liaison service (FLS) model.^[2] In the last several years several FLS models have started to close the fracture gap. The objective of this review is to describe the national guidelines and the current clinical treatment models and results for fragility fractures. For this review, the contributing authors prepared their reports independently. Data was collected from national and international publications of national projects related to fragility fractures and interviews with leading clinicians. Several

national quality indicators were published in each country to improve surgical treatment and osteoporosis medical treatment. All of the FLSs were created by local clinicians with different models, depending on the medical geographic location of the patient and local set-up conditions. Barriers to successful implementation have been identified and are reviewed.

2. South Africa

2.1. Introduction

South Africa (SA) is a developing nation with interesting health care provision challenges. There is a mix of developed world health care provision in the urban and private health system and developing world health care provision in the public sector and rural areas. Some public hospitals offer exemplary care, whilst some are plagued by corrupt and inadequate management with significant budget constraints. The private health care system operates on a fee for service model, with increasing interference from the powerful funder industry which promotes “protocols” of care based in actuarial determinations.

The average life expectancy is between 63- and 73-years, dependent on socioeconomic status, race, gender, and access to health care. Osteoporosis management is often overlooked and not prioritized under the prevailing trauma and health care conditions. In 2018 to 2019, the SA lead author and his partners championed the “capture the fracture” concept, developed a Fracture Liaison Service in conjunction with the physicians in their hospital, and partnered with the Osteoporosis foundation to deliver a series of presentations to the South African Orthopaedic Association branch meetings in 2019. The practice and Hospital were awarded a “bronze star” status, the first in sub-Saharan Africa.

In this program, all suspected fragility fractures are investigated and referred to physicians for management. Investigations include hematological screening and referral for Dual Energy X-Ray Absorptiometry scan, which is a funder prerequisite to approve treatment, followed by therapeutic management during the admission if recommended. This implies increased costs for the patient or their funder to carry, and there is often reluctance to agree to this management. The public hospitals are mostly

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unable to deal with the logistical requirements of a dedicated FLS, but individual practitioners manage their patients according to their needs. For this report, the SA lead author has attempted to enquire as to whether his patients are in fact being registered on the FLS and was disappointed to find that the ongoing management of the patients was left to the patient and their families to arrange. Clearly, despite the enthusiasm to offer the FLS service, multiple barriers are obstructing this endeavor.

3. National guidelines and standards

3.1. Review of the current standard of care

On April 7, 2021, the National Osteoporosis Foundation of South Africa (NOFSA) had published on their website the recommendations for the management of osteoporotic fractures which is aimed at demonstrating that a multidisciplinary approach, in line with the “capture the fracture” global program, was the most efficient means to reduce mortality in low energy hip fractures. In SA there are currently only 2 health centers that have attained recognition to have their FLS mapped, namely Vincent Palloti Hospital (Bronze star) as well as Tygerberg Hospital (Blue star, mostly run by the Endocrine Department) both hospitals located in the western province of SA. Whilst there are numerous challenges to setting up an efficient FLS these centers have at least demonstrated that it is possible to at least initiate this life-saving intervention.

4. Organization, successes, and barriers

4.1. Public health system

A recent publication looking at hip fractures in SA led by Prof Cassim (counsellor for NOFSA) demonstrated largely generalizable limitations to most state hospitals providing care to patients with hip fractures. The group demonstrated that, in SA, the mortality rate following hip fracture is at an alarming 33.5% at the 1-year postfracture stage, in line with international literature. Patients locally had a median time from admission to surgery of 19 days, with only 4.5% of patients having surgery within 48 hours of admission.^[3] Although in this group’s research, delay to surgery did not show higher mortality risk, there is evidence in the literature to show that a delay to surgery is a risk for mortality.^[4] Interestingly, they highlighted that, although national guidelines endorsed by NOFSA and the Orthopaedic association are available, they are commonly not followed.

In most state health care hospitals theater availability for orthopedic service delivery is limited by many factors including, but not limited to, the major trauma burden, staff availability (nursing and doctors), and budgetary restraints, often due to local inefficiencies. To be able to set up an efficient FLS in the state sector, which is currently plagued by resource limitation, may seem to be a mammoth task. Currently, with tertiary hospital budget reductions, staff shortages, and burnout, especially following the pandemic, it is not foreseeable that there would be a change in the approach to managing patients with osteoporotic fractures. Initial management of these injuries is largely via surgical intervention by orthopedic units as the initial contact department which administers intravenous bisphosphonate therapy upon the initial admission. Thereafter, treatment consists of consultation with colleagues from the endocrine service and allied health care providers for continued care without a dedicated FLS. Whilst the International Osteoporosis Foundation (IOF) offers great guidance within

their online patient portal, in SA this mode of communication is likely to be ineffective particularly for the target group that has limited access to the internet. Improved messaging however can be managed via innovative solutions from the health care providers (HCPs).

4.2. Private health care system

Private health care delivery as a pay-per-use facility is well positioned to more readily offer an efficient Gold-star FLS. Barring monetary challenges, which could be rationalized based on available cost-benefit statistics, the private medical insurers are best resourced to mitigate the debilitating burden of fragility fractures on the vulnerable and elderly patient populations. The IOF has well-described protocols and mentorship programs to guide health care facilities and HCPs in the setup of FLSs. Perhaps what is missing in the development of FLSs is not only the will to initiate these services (such as the initiative that has been demonstrated by a pilot group at the senior authors institution), but also the support base/network of HCPs and allied health care personnel that require recognition by the medical insurance groups to acknowledge and fund a structured FLS.

The initiative for a comprehensive combined national orthopaedic registry (as championed by the SAOA) will in time aid in calculating the cost-benefit analysis, which would provide essential data for the private health insurer to consider funding the FLS in some form in the private sector.

5. Future direction

There is ample evidence to demonstrate the urgent need for a FLS in health care delivery in South Africa, as there is globally.^[5] Our challenges, although unique in certain respects, have parallels with the global community and one such parallel is the influence of financial constraints on efficient service delivery. An FLS system aims to streamline the care of vulnerable groups, making it easier to motivate the urgent attention required from national health directorates and private medical insurance groups that have the resources to positively influence and make a palpable difference in health care delivery. Perhaps in SA, the HCPs in their respective health care facilities, both state and private, need to be continuously engaged and educated about the benefits of an FLS and thereafter mentored toward initiating this service.

6. Israel

6.1. Introduction

In Israel, most patients at high risk, who have already had at least one osteoporotic fracture, are neither identified nor treated.^[1] In 2012, the American Society for Bone and Mineral Research task force published its recommendation for closing that gap with a FLS model.^[2] In the last several years in Israel, several FLS models have started to close the care gaps for osteoporotic fractures.

6.2. National guidelines and standards

Published in 2013, the quality indicator that checks the rate of performing surgery for a femoral neck fracture within 48 hours of admission to the hospital has represented a significant guideline. The report shows significant improvement in the rate of hip fracture surgeries performed within a 48-hour window, with an increase from 71% in 2013 to 86% in 2019.^[6] A second indicator documents a functional assessment upon admission

and at discharge from rehabilitation after a hip fracture. This indicator has shown consistent improvement from 68% in 2014 to 97% in 2019. A third indicator tracks compliance with the administration of Vitamin D after a hip fracture as a preventive measure. The level of compliance with this indicator also showed improvements from 74% in 2014 to 97% in 2019. Once the patient is discharged, the responsibility for their further management shifts to the community health care system. In 2018, a new quality indicator was set for Health Maintenance Organizations (HMOs) in the care of elderly patients aged 65 to 85 who sustained hip fractures. This indicator evaluates osteoporosis medical treatment following hip fracture during the first year postfracture. The rate of medical treatment for osteoporosis following hip fracture has increased mildly from 25.5% in 2015 to 28.1% in 2018. The standard has increased each year since implementation, with the current goal to reach 50% of patients receiving treatment.^[7]

7. Organizations, successes, and barriers

7.1. Models

Several FLS models have been created by individual clinicians and centers to ensure good treatment protocols. All FLS organizations but one relies on a coordinator. The 3 main models are based on the medical and geographical location and status of the patient, and are comprised of medical centers, rehabilitation centers, or community-based care.

Medical centers: Several medical centers created FLSs in the last few years. Most of them utilize a coordinator and an endocrinologist as the primary physician and consultant. In these centers, the patient is admitted to the orthopedic service, undergoes surgical treatment, and is subsequently discharged to home or a rehabilitation center. The FLS coordinator identifies the patient when first admitted and completes an evaluation and treatment recommendation in the geriatric rehabilitation center or for an outpatient clinic when the patient is discharged to home rehabilitation. The FLS may be embedded within the orthopedic department as part of the orthopedic team, with the evaluation and treatment recommendations made within the first few days of admission. The FLS model may also include a virtual consultation by an endocrinologist, particularly useful during the pandemic, with continued follow-up when the patient is transferred to the rehabilitation center. The results vary between the different centers and according to the FLS model used. During 2017 to 2019, the endocrinology-based model resulted in 51% of patients having had an endocrinology consultation and 55% of the patients admitted to the geriatric rehabilitation department following discharge having received medical treatment for osteoporosis. Virtual consultation as part of an FLS program has been shown to increase the medical treatment for osteoporosis from 22% to 48%. Good results were also seen with the FLS embedded in the orthopedic department where 96% of patients were discharged with a specific osteoporosis treatment recommendation and 73% of patients received medication for osteoporosis on average of less than 3 months from surgery.^[8]

Rehabilitation centers: Few rehabilitation centers have created an FLS. The average stay of patients at these centers is longer than those for acute medical centers, which is a major advantage for evaluation and treatment of postfracture osteoporotic patients. Most patients are treated while completing rehabilitation, thus ensuring compliance for the medical treatment. One report demonstrated that 82% of patients received medical treatment for osteoporosis in this model.^[8]

Community-based care (HMOs): All citizens in Israel are related to a HMO in the country. The coordinator is notified once the patient is discharged from the hospital and an outpatient clinic which includes an endocrinologist and primary care physician for evaluation, is organized. This model has been shown to be highly successful with 60% to 75% of patients receiving medical treatment for osteoporosis.^[6]

7.2. Barriers

There are several barriers to the successful implementation of FLS projects in Israel. First and foremost, there are no national standard-of-care requirements for the establishment of an FLS in every medical or rehabilitation center. Additionally, all of the models mentioned previously have relied on local funding, as state funding is not provided, which is particularly critical for those models that utilize a coordinator (some centers have relied on seed money from IOF grant funding). Another obstacle is the lack of adequate communication about individual patient care plans between orthopedic departments and endocrinologists within medical and rehabilitation centers and between the medical and rehabilitation or community-based centers. Long-term compliance with set community-based programs is also an issue, with loss of treatment continuity after the initial management.

8. Future direction

Israel continues to move forward with fragility fracture treatment, mainly hip fractures with several quality indicators. All of the FLSs were created by local clinicians with different models depending on the medical geographic location of the patient, available resources, and the local organization. Despite a central mandate to create these services, the success rates for osteoporotic treatment implementation have been notable. The compliance rates for osteoporosis treatment following hip fractures have been reported to be between 50% and 80%, which is at least 2 to 4 times that reported in published data without intervention.

9. Conclusion

It is unsurprising that both South Africa and Israel, with their disparate medical system environments, have reported early success in the implementation of treatment for patients following an osteoporotic fracture. Similarly, both countries also identified funding issues as a major barrier to care. Although the public health service in South Africa (in certain well-managed areas) and Israel can be beacons of exemplary care, the overwhelming burden of health care provisions implemented in these countries is reactive rather than proactive. For South Africa, the much vaunted “National Health Insurance” project of the governing party (NHI) is seen as a luxury the country can ill afford at present, and the pandemic has added to this concern. South Africa’s private health care service caters to approximately 20% of the population, and is facing increasing interference from the funders, but a robust data set will most likely show the cost benefits of a FLS and allow for it to become standard of care.

Israel, with a smaller population, better Gross Domestic Product, and a more socialistic approach to health care provision, may face fewer obstacles.

While much of the information cited in this article is based on conference presentations and communications of best-available

data and nonpublished, further documentation of the benefits of these evolving FLS systems will undoubtedly aid in the advocacy for mandates, support, and funding from government and private organizations. International data and actuarial determinations showing the benefits of FLSs medically and financially should be leveraged to promote improved management of this important patient group.

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