

Orthopaedic surgeons' perceptions on COVID-19 related changes in practice: an international survey

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Abstract

Purpose

The purpose of this study was to assess the orthopaedic surgeons' perceptions on COVID-19 related changes in their practice.

Methods

An online survey was shared with orthopaedic surgeons practicing in different countries.

Results

This study showed that orthopaedic surgery plan management was adapted to respond more effectively to the COVID-19 pandemic while maintaining the continuity of health care and ensuring protection of medical staff and patients. Among the introduced measures, elective surgery was postponed to free-up beds for suspected or COVID-19 positive patients requiring hospitalization. Additionally, the number of outpatient visits was considerably decreased and non-urgent visits were postponed to reduce the flow of patients in and out of hospitals and therefore minimize the risk of contamination. Interestingly, data revealed the willingness of orthopaedic surgeons to take care of COVID-19 positive patients and support their colleagues in intensive care units, if needed.

Conclusions

Though, orthopaedic surgeons are not in the frontline, they have an important role to play to face the increasing pressure due to the COVID-19 pandemic. In addition to the changes imposed in their current practice, they have a role in providing support to other colleagues in the fight against this global crisis.

Introduction

The COVID-19 pandemic is one of the largest global healthcare crises in nearly a century. The novel coronavirus crisis started in Wuhan, China in late 2019 and has spread worldwide[1]. On 11 March 2020, the World Health Organization (WHO) declared that the epidemic of COVID-19 had become a pandemic [2]. To face this global health emergency which has overwhelmed the health systems around the world, health institutions have had to readjust their functioning, to cope with COVID 19 while ensuring the continuity of care and protecting medical staff and patients[3]. At first glance, orthopaedic surgeons are not considered front-line staff in the fight against the COVID-19, comparing with our colleagues of other specialities: infectiologists, pneumologists and intensive care physicians. However, as part of the larger healthcare system, they also have an important role to play in reining in this pandemic[1, 4]. The purpose of this study was to assess the orthopaedic surgeons' perceptions on COVID-19 related changes in their practice.

Materials And Methods

We developed an online, anonymous web-based survey using non-probability snowball sampling technique

A 29-question anonymous survey (Table 1) was shared with orthopaedic surgeons practicing in different countries across social media orthopaedic groups and platforms. The questionnaire was designed to assess the orthopaedic surgeons' perceptions on COVID-19 related changes in their practice. We shared the online questionnaire and collected relevant data. Results were exported to Microsoft Excel version 2010 for analysis. The survey included different sections. The first one was about general information: country of practice, age, sector of activity and years of experience. Then, we asked about knowledge about the COVID-19: specific training, recommendations, risks and protection. The respondents were required to report their experience of care for COVID-19 positive patients and their motivation to work in COVID-19 units. Specific questions were asked about orthopaedic and trauma activity: number of surgeries (planned or emergency), number of outpatient visits and supply of orthopaedic equipment. They were also interrogated if they had reported symptoms or had suspected a COVID-19 infection and what were the measures taken about that. They were also required to report the level of personal protection at work, which equipment they used and which protection equipment is missing the most in their institution. Finally, the respondents were asked about their countries strategy and what do they think is the best solution to face the COVID-19 pandemic.

Results

534 orthopaedic surgeons representing 80 countries (Table 2) participated to the study.

The mean age of participants was 40 ± 9 years (min 29 years, max. 76 years old). 59% are working in public hospitals. 21% and 19% of participants have more than 10 and 20 years' experience in orthopaedic surgery, respectively. 60% of orthopaedic surgeons reported having extensive knowledge of COVID-19 and 53% have confirmed having received relevant training at their place of work. 425 surgeons asked (79%) reported their awareness about measures of protection and risks for medical staff and patients. 75 respondents (14%) reported having operated on COVID-19 positive patients but 52% declared their willingness to operate suspected or COVID-19 positive patients with orthopaedic pathology. 62% of orthopaedic surgeons declared being ready to work and help in intensive care units if needed.

Concerning their specific activity, 55% have cancelled elective surgeries while 16% reduced their activity by about 90%. The number of emergency and trauma surgeries has decreased for the majority of physicians asked, by 90% for 18% and by 50% for 23% of them. 16% of surgeons declared having the same trauma activity as usual (Fig. 1). In the same way, more than 59% notified a clear decrease (more than 75%) on the number of traffic accidents. 26% reduced the number of outpatient visits by 90% while 113 surgeons (21%) have cancelled all outpatient visits. In the same way, more than 59% notified a clear decrease (superior than 75%) on the number of traffic accidents. The supply of orthopaedic equipment for the orthopaedic departments was not affected according to 60% of respondents. 338 doctors (63%) have used telemedicine with their patients during the COVID-19 pandemic. 147 surgeons (27%)

experienced one or many symptoms suspecting a COVID-19 infection. The best option was to stay home and observe their symptoms for 51% of them. 62% of respondents reported self-isolating at home when they return back from work place. 74 % declared feeling stressed and anxious about this global pandemic. The equipment used for personal protection are medical masks, respirator N 95 or FFP2 masks, face shields, gloves, gowns and protective glasses. 77% of respondents estimated that their countries were under-equipped to deal with the COVID-19 pandemic while 57% were in agreement with their institutions strategies to face this crisis. To avoid COVID-19, orthopaedic surgeons asked recommend to people: regular hands washing, hydro-alcoholic sanitizer, social distancing, face masks, gloves and of course to stay home. Finally, 37% of the interviewed doctors believe that the best solution for COVID-19 would be to make a specific vaccine while 37% proposed respect of quarantine as a preventive method to face the Covid-19 pandemic.

Discussion

Orthopaedic practice has been markedly affected by the emergence of the COVID-19 outbreak. Changes to clinical practice have been largely guided by clinical urgency, patients and medical staff protection and conservation of health-care resources. Having said that, changes to inpatient and outpatient care have been accordingly tailored to reduce the risk of contamination in patients, medical staff and to allow hospitals to free up beds for treatment of patients with positive or suspected COVID-19 [4, 5]. All elective surgical procedures should be cancelled and deferred until an opportune time [6]. Trauma cases surgeries should continue to proceed. Intraoperatively, full personal protection including surgical shields and goggles should be used. Operative times should be reduced whenever feasible, and surgical team should be kept to the minimum, whenever possible [4, 5, 7]. The reported decrease in the number of road accidents is due to the lockdown policy imposed by several countries worldwide and remote work adopted by a large number of institutions and organizations. Further measures may also be implemented. Hospitals should be in lockdown with no visitors allowed, social distancing at work (between coworkers) and at home (between cohabiting health-care workers). Physicians have also been advised to prolong the duration between non-urgent follow-ups to reduce patient overcrowding in hospitals [4, 5, 7]. Although non-urgent clinics and surgical procedures have been postponed until the situation improves, we must ensure that appropriate quality of care given to our patients is maintained. The emergence of such a crisis provides a timely opportunity for us to reflect and evaluate the use of novel technologies in the workplace. This includes the adoption of telemedicine and telerehabilitation initiatives, allowing patients to be consulted and followed-up in the comfort of their own homes [4, 5, 8–10].

Apart from the information shared by healthcare institutions, healthcare professionals used various other sources of information such as television, social media and World Health Organization website (Table 3) [11].

This study demonstrated high level of awareness amongst orthopaedic surgeons about the risk of infection in healthcare professionals and patients as well as the preventive measures for stopping or

minimizing spread of the disease. Given the increased risk for transmission COVID-19 virus in hospitals in general and operating theaters in particular, special personal protective measures must be provided. As surgeons, utmost care must be given to patients in the preoperative, intraoperative, and postoperative settings to minimize the risks of contamination. The risks and benefits of surgical management should be rationalized for each patient [4, 11, 12]. COVID-19 has shown more infectivity and a higher fatality rate than the H1N1 epidemic [2, 11]. In addition, important clinical features of COVID-19 are currently unknown. These two elements may explain the number of interviewees (48%) who expressed reluctance to treat or operate non-urgent conditions in COVID-19 positive patients. Notably, the most common reason for their unwillingness to treat COVID-19 positive patients is due to their concern of getting the infection and transmitting the virus to their family members. With a better understanding of COVID-19 characteristics, we would expect a gradual increase in the number of medical staff who will be willing to treat infected patients [2, 11]. The COVID-19 crisis has resulted in people working outside their specialty, providing support to infectiologist, pneumologist and intensive care physicians [1, 5]. We know that virus is likely to cause minor symptoms in majority (more than 80%) of infected people. Many healthcare workers are likely to fall into this category [1]. Orthopaedic surgeons have a reputation built on their versatility and strength. Emotional support is necessary for ourselves, colleagues, patients and families [1, 13, 14]. Most interviewed practitioners estimated appropriate protective measures have been provided at work (table 4). Provision of personal protective equipment to healthcare professionals has been a huge challenge in many countries [1, 7, 15].

Personal protective equipment included medical masks, respirator N 95 or FFP2 masks, face shields, gloves, gowns, and protective glasses [11, 16, 17]. Given the extent of the pandemic, a shortage of a widely used equipment has been reported with FFP2 masks arrive in the top of the list -reported by 58% of the interviewed participants- (table 5). Institutions and governments have put in place different strategies to face this shortage, notably, support increasing production capacity and accelerating approval of protective equipment during this crisis [17, 18]. To help prevent spread of COVID-19, orthopaedic surgeons recommendations were frequent hand washing for a minimum 20 seconds, use hydro-alcoholic sanitizer, social distancing, use of face masks, gloves and of course confinement while waiting to discover a specific treatment and to make a specific vaccine.

We recognize certain limitations in our study. The data collected are subjective and represent perceptions of

orthopaedic surgeons asked. Few countries have enough participants to make meaningful inferences about these responses relevant to each country. Another limitation is that the non-response rate could not be calculated and distribution of responses was skewed. The severity of the outbreak was not the same in all countries, so the measures taken by governments and health institutions were different [12]. Finally, the experience of the person who fills out the questionnaire may affect the results.

Conclusion

The COVID-19 pandemic has posed an unprecedented challenge for healthcare systems and clinicians around the world. This pandemic has confronted the orthopaedic community with challenges never encountered by our profession. During this unprecedented time, in addition to the changes imposed in our current practice, we have to get out of our comfort zones to work as a team with all of our colleagues to face the COVID-19.

Declarations

Conflict of interest:

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Tables

Table 1 : Survey questions

Q1 - Country of practice

Q2 – Age

Q3 – Sector of practice

Public Private

Q4 – How many years have you practiced orthopaedic surgery

0 - 5 years 5 - 10 years 10 - 20 years > 20 years

Q5 – Have you received a specific training or recommendations about COVID-19 from your institution

Yes No

Q6– Do you feel well informed on the latest COVID-19 guidelines

Very well informed

Well informed

Somewhat informed

Poorly informed

Q7 – What is your principal source of knowledge about COVID-19

Television

Social media

WHO (OMS) = world health organization

Your institution (hospital, clinic)

Q8 – Are you aware of the measures to protect yourself and patients during the COVID-19 pandemic

Yes No

Not sure

Q9 – Are you aware of all the risks of COVID-19 pandemic for patients and medical staffs?

Yes No

Not sure

Q10 – Have you already operated on patients positive with COVID-19

Yes No

Q11 – Are you willing to operate COVID-19 positive patients with an orthopaedic pathology

Yes No

Not sure

Q12 – Are you willing to work and help in Intensive care units if necessary

Yes No

Not sure

Q13 – Actually, with the COVID-19 pandemic, the number of planned surgeries you are practicing is:

Did not change (same activity as usual)

Decreased by 10 %

Decreased by 25 %

Decreased by 50 %

Decreased by 75 %

Decreased by 90 %

You have stopped practicing planned surgeries

Q14 – Actually, with the COVID-19 pandemic, the number of emergency surgeries (trauma) you are practicing is:

Did not change (same activity as usual)

Decreased by 10 %

Decreased by 25 %

Decreased by 50 %

Decreased by 75 %

Decreased by 90 %

You have stopped practicing emergency surgeries

Q15 – Actually, with the Covid 19 pandemic, the number of outpatient visits:

Did not change (same activity as usual)

Decreased by 10 %

Decreased by 25 %

Decreased by 50 %

Decreased by 75 %

Decreased by 90 %

You have stopped consultation

Q16 – Actually, with the COVID-19 pandemic, the number of traffic accidents:

Did not change

Decreased by 10 %

Decreased by 25 %

Decreased by 50 %

Decreased by 75 %

Decreased by 90 %

Has increased

Q17 – Has the crisis affected the number and quantity of orthopaedic equipment ordered by your institution?

Yes No

Q18 – Actually, with the COVID-19 pandemic, have you used telemedicine for your patients

Yes No

Q19 – During this COVID-19 pandemic, have you experienced any or more of the following symptoms: Fever, cough, runny nose, headaches, sore throat, tiredness, asthenia

Yes No

Q20 – If Yes or you have a suspicion of a COVID-19 infection, what would you do

Stay at home and observe yourself

Call a specific COVID-19 phone number

Go to the Institution where you work

Go to the nearest hospital

Other

Q21 – Do you isolate yourself at home when you return back from your workplace

Yes No

Other:

Q22 – Do you feel stressed and anxious about this COVID-19 pandemic

Yes No

Q23 – How do you estimate your personal protection against COVID-19 during your medical practice

Please choose from 1 = not protected to 5 = well protected

1 2 3 4 5

Q24 – Which equipment do you use for your personal protection against COVID-19

- Medical mask
- Respirator N 95 or FFP2 mask
- Face Shield
- Gloves
- Gown
- Protective glasses

Q25 - Which personal protection equipment stock your institution is missing the most

- Medical mask
- Respirator N 95 or FFP2 mask
- Face Shield
- Gloves
- Gown
- Protective glasses

Q26 – What advice could you give to people to avoid COVID-19

- Regular washing of hands
- Hydro-Alcoholic sanitizer
- Social distancing
- Face mask

- Gloves
- Stay home

Q27 – Do you think that your country is well equipped to deal with this

COVID-19 pandemic

Yes No Not sure

Q28 – Do you agree with your institution strategy to face the COVID-19 pandemic

Yes No

Q29 – In your opinion, which is the best solution to face the Covid 19 pandemic

- Quarantine
- Herd immunity
- Find a specific treatment
- Find a specific vaccine
- Other

Table 2: List of countries

| Country | Responses |
|--------------------------|-----------|
| Albania | 1 |
| Algeria | 185 |
| Andorra | 1 |
| Argentina | 2 |
| Australia | 2 |
| Austria | 2 |
| Bangladesh | 3 |
| Barbados | 1 |
| Belgium | 27 |
| Brazil | 18 |
| Burkina Faso | 3 |
| Cameroon | 1 |
| Canada | 3 |
| Central African Republic | 1 |
| Colombia | 3 |
| Congo (RDC) | 1 |
| Cote d'Ivoire | 3 |
| Croatia | 4 |
| Egypt | 6 |
| El Salvador | 1 |
| Finland | 6 |
| Georgia | 1 |
| Germany | 3 |
| Hong Kong | 1 |
| Hungary | 1 |
| India | 57 |
| Indonesia | 4 |
| Iran | 4 |
| Iraq | 1 |
| Ireland | 1 |
| Italy | 7 |
| Japan | 4 |
| Kenya | 3 |
| Latvia | 1 |
| Lebanon | 1 |
| Libya | 2 |
| Luxembourg | 4 |
| Macedonia | 1 |
| Madagascar | 2 |
| Malaysia | 1 |
| Mali | 1 |
| Mauritania | 1 |
| Mexico | 1 |
| Moldova | 2 |
| Monaco | 1 |
| Morocco | 9 |
| Namibia | 1 |
| Nepal | 9 |
| New Zealand | 1 |
| Nigeria | 5 |
| Oman | 3 |
| Pakistan | 6 |
| Paracel Islands | 1 |
| Paraguay | 10 |
| Philippines | 4 |
| Poland | 1 |

| | |
|----------------|------------|
| Portugal | 2 |
| Qatar | 1 |
| Romania | 14 |
| Russia | 5 |
| SaudiArabia | 3 |
| Senegal | 4 |
| Singapore | 2 |
| South Africa | 2 |
| Spain | 1 |
| Sudan | 1 |
| Sweden | 6 |
| Switzerland | 11 |
| Syria | 1 |
| Taiwan | 2 |
| Togo | 2 |
| Tunisia | 12 |
| Turkey | 2 |
| Uganda | 2 |
| Ukraine | 1 |
| United Kingdom | 17 |
| United States | 11 |
| Uzbekistan | 1 |
| Vietnam | 1 |
| Yemen | 1 |
| Total | 534 |

| | Sources of knowledge about COVID-19 | |
|--|-------------------------------------|----------------|
| Your institution (hospital, clinic) | 212 | 39,41% |
| Social media | 49 | 9,11% |
| WHO (OMS) = world health organization | 124 | 23,05% |
| Television | 153 | 28,44% |
| Total | 538 | 100,00% |

Table 3. Sources of knowledge about COVID-19

| | How do you estimate your personal protection against COVID-19 during your medical practice [Please choose from 1= not protected to 5 = well protected] | |
|--------------|--|----------------|
| 1 | 80 | 14,87% |
| 2 | 118 | 21,93% |
| 3 | 209 | 38,85% |
| 4 | 101 | 18,77% |
| 5 | 30 | 5,58% |
| Total | 538 | 100,00% |

Table 4. Degree of personal protection

| | Which personal protection equipment stock your institution is missing the most | |
|------------------------------|--|--------|
| Face Shield | 66 | 12,27% |
| Gloves | 7 | 1,30% |
| Gown | 33 | 6,13% |
| Medicalmask | 79 | 14,68% |
| Protective glasses | 42 | 7,81% |
| Respirator N 95 or FFP2 mask | 311 | 57,81% |
| Total | 538 | 100% |

Table 5. Personal protection equipment

Figures

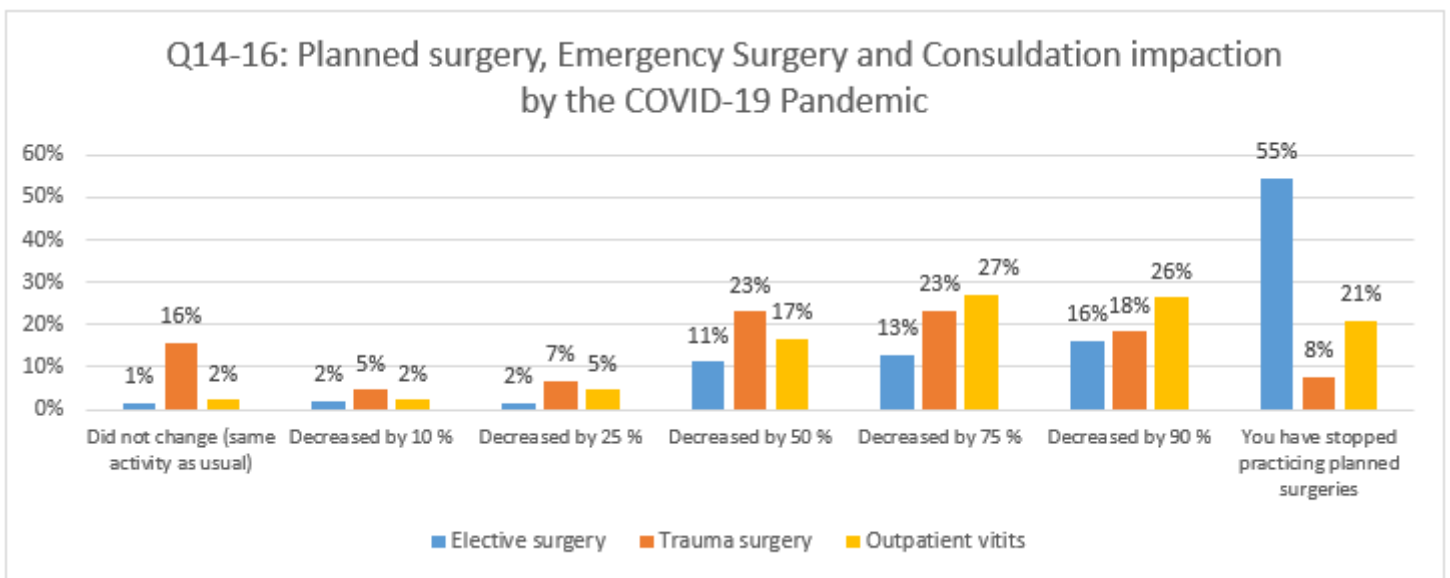


Figure 1

Impact on the elective surgery, trauma surgery and outpatient visits