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ORIGINAL ARTICLE

Inmate cancer patient - Highlighting the importance of a holistic approach to oncological care

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Summary

Purpose: *Inmate oncologic patients' rates increased drastically worldwide. Elderly, limited exercise, unhealthy diet, hepatitis, HIV + status, tobacco and alcohol use, constitute the main cancer risk factors. We present an outline of practical oncological management and ethical thinking, in the specific environment of a detention facility.*

Methods: *PubMed, Cochrane Database of Controlled Trials, SCOPUS and grey literature were extensively searched up to October 2021. Incarcerated oncologic patients experience various everyday challenges:their confinement in high security facilities, the lack of access to critical care and related ethical dilemmas inherent to the context of a correctional facility.*

Results: *The detention facilities may be inadequate in providing early cancer diagnosis and appropriate care mainly due to a lack of specialized personnel, b) in-house or in external specialized cancer hospitals, care variability (e.g. admissions in small local or regional hospitals), c) delays in providing access and d) gatekeeper systems.*
There is a paucity of administration of a)systemic therapy (chemotherapy, targeted drug therapy etc),b)radiotherapy, c) palliative care, and d)enrollment in clinical trials.

Conclusions: *Correctional facilities must encourage teamwork between healthcare and correctional professionals in order to improve the provided anticancer care.*

Key words: *Inmate, cancer, patient, holistic, anticancer, approach*

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Introduction

During the last years, a medical problem has arisen, concerning the prisons' population who will be over 55 years old by 2030[1,2] and the fact that death rates increase, with cancer being the 2nd cause of death. The most common cancers are the following: lung, head and neck, gynecologic, anal and bladder tumors [3, 4].Rates of chronic diseases (e.g. psychiatric or hepatitis C) or precancerous lesions (e.g. cervical or anal intra-epithelial neoplasias, HPV related) are also higher amongst them, in comparison to the general population [5], constituting a serious financial and ethical burden worldwide for the correctional systems and population in general [6].

The aim of palliative care, according to WHO, is to improve the quality of life of patients and their families who are facing problems, (whether physical, psychosocial or spiritual) associated with a life-threatening illness. According to the United Nations and the Universal Declaration of Rights (1948): All human beings are born free and equal in dignity and rights (Article 1) and no one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment (Article 5). Living with dignity is a fundamental human right [7].

Imprisoned cancer patients have the right to access oncologic, palliative, hospice and end-of-life care [6]. Nevertheless, sometimes this can be challenging due to their custody restrictions [8].

Only a few studies have investigated incarcerated cancer patients and their health state is profoundly understudied [9]. Especially some subgroups (e.g. indigenous) are difficult to access and they are under-researched. In the present paper, we discuss the therapeutic oncological management for this group of patients.

Methods

We included papers on healthcare provision to incarcerated patients. PubMed, Cochrane Database of Controlled Trials, SCOPUS and grey literature were extensively searched up to October 2021. In electronic databases we used the following terms: "incarcerated", "patients", "oncology", "end-of-life", "compassionate release", "palliative care", "radiotherapy", "chemotherapy" and "surgery". Cross references from the included studies were hand-searched. For this study we followed the methodology of a narrative review due to limited available data. Our goal was not to miss any source of evidence in order to present a resourceful study. We only used papers in English language, however, one study was in French and therefore we extracted information only from its abstract, which was in English. Studies that did not clearly meet the inclusion criteria were excluded. Search in organizational websites was also conducted and their data were included due to pertinent content.

Results

Healthcare professionals

Correctional facilities usually occupy a physician for clinical examination, medication prescription and a second one, off-premise, on call, in case of an emergency. Laboratory examination may be feasible on-site, yet most often it is not used for a regular screening[8].Healthcare professionals must interact with all incarcerated patients in a sensible/proper way, treating them as human beings and not in a manner generated by their personal feelings towards the crime committed[10]. The doctor's main purpose is to provide equal health care to all prisoners, irrespective of their sentence or crime[11].Medical staff providing cancer care delivery must be properly trained to deal with various challenges, such as examining a handcuffed patient, having correctional officers present at a clinical examination or what happens in case of a compassionate release demand[8]. Usually, there is an inadequacy in medical and nursing staff, especially during the night shift. As a consequence, some inmates work in patients' care assistance.

In emergency medical situations, the correctional facilities are unable to provide the incarcerated patients with appropriate care, leading to the transfer in the closest available health care facility, where clinicians are unaware of the required procedures and possible obstacles in the provision of palliative care [5]. For instance, a correctional officer must unlock the door to access the patient [12] and this officer is always present during examination, especially in cases of 'dangerous' prisoners. A report refers on a case of a 'dangerous' patient that needed appropriate palliative care but no external facility accepted him [13]. This case demonstrates the way the authorities and the community at large deal with these individuals [13]. However, telehealth can be a solution to the problems arising after the end of treatment, bringing patients in touch with their doctors with minimum cost and transportations [8] (Table 1).

Security officers

Shackling policies that are consistent with the patient's safety, the clinicians' needs and the law enforcement must be implemented in every medical care facility. Handcuffs, leg chains and every other mean of shackling are not "medically approved" and removed if needed, finding another way of maintaining everyone's safety [8]. The use of barriers may complicate palliative care provision. Lack of personnel (e.g. police escorts to accompany patients to the hospital), causes delayed access to

Table 1. Incarcerated cancer patients and health care professionals

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Haber et al., USA, 2019 [5]	Review	1. The majority of hospitalized IPs are younger males with shorter hospitalization periods. 2. Individual's IP status, institutional policy and individual HC professional practice seem to influence the hospital practices regarding privacy, physical restrain and discharge counseling.	Further studies searching about the management of medical conditions concerning hospitalized IPs.	HP should be aware of IP's rights and living conditions.
Olederu et al., USA, 2019 [8]	Comment	Necessity to build strong relationship between HP and IP.		1. Further research needed on the IP. 2. Use of tele-health for f-u. 3. Train HP in order to address to IP health care. 4. Train IP and HP on PC.
Tran et al., Europe, USA, Australia, 2018 [10]	Debate	1. Ask for specification of language used for IP's self-evaluation. 2. Avoid diminishing or discriminating language towards IP. 3. Person-centered language concerning IP's conditions, regardless of their social and financial status. 4. Politicians, the media and scientific community should avoid disrespectful terminology towards IP.	Adjustments to local languages and socio-cultural environment.	1. IP should use appropriate language, thus promoting health boost and well being. 2. Use respectful and dignified vocabulary.
Olederu et al., USA, 2020 [11]	Comment	1. Health care professional's duty does not end when the death sentence is read and should not be an obstacle in providing PC. 2. IP with a death sentence has the same rights in PC as the rest of the community. 3. Ability of IP to access to MDT implementing PC. 4. Palliative care should be available to incarcerated people. 5. Promotion of human rights and HC principles within correctional facilities.		Respect of the Hippocratic oath on HC provision whether the individual is sentenced to death or any other judicial sentence, or not.
Chassagne et al., France 2017 [12]	Qualitative study	Difficulty in providing sufficient PC for IP, due to prison HC limitations and poor communication between IP, caregivers and families.		HP and correctional professionals should collaborate in order to be prepared for end-of-life issues in prison to form a request for compassionate release.
Marti et al., Switzerland, 2017 [13]	Qualitative study	Introduction of a different logic in prisons' organizational system due to elderly and dying IP.		1. Points out the dualistic logic in prisons (punishment/ rehabilitation). 2. Gives space to test and launch new practices that could be regulated.

Health Provider: HP, IP: Incarcerated-Cancer Patient, f-u: follow-up, PC: palliative care, Multidisciplinary Team: MDT, HC: Health Care

Table 2. Security officers and incarcerated cancer patients

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Olederu et al., USA, 2019 [8]	Comment	IP' suspicions of injustice can be worsened by the lack of knowledge about the HC need of these pts.		The participation and the exposure of the prison staff in the hospice programs can minimize their suspicions.
Chassagne et al., France 2017 [12]	Qualitative study	Collaboration and preparation between HP and correctional professionals on end-of-life issues and compassionate release.		Collaboration and preparation between HP and correctional professionals on end-of-life issues and compassionate release.
Marti et al., Switzerland, 2017 [13]	Qualitative study	1. The importance or relevance of a condition depends on the actors who deal with it. 2. Some employees tend to show more affection in end-of-life IPs.		Gives space to test and launch new practices that could be regulated
Bolano et al., USA, 2017 [15]	Cross-sectional	Data show that 44% of the IPs reported at least one distressing physical symptom, the most common being pain(28%) and sleeping difficulty(15%). 22% mentioned a distressing symptom in all distress categories and 27% a symptom in 3 out of 4 categories.	Research in order to investigate the complex HC needs for the IPs.	It is the first attempt to present older IPs distressing symptoms. Strategies are needed for distressing symptoms management within correctional facilities.
Handtke et al, Switzerland, 2013 [16]	Qualitative study	1. Attitudes towards death. 2. Experiences towards the death of other inmates and several life-threatening situations. 3. Commit suicide or having suicidal thoughts. 4. Reality of end-of-life services within prison. 5. Significance of end-of-life relations with family and friends. 6. Desire to die outside the correctional facility.	Research on the quality of end-of-life services for IPs in the countries that already apply that kind of HC in their correctional facilities.	The study showed that end-of-life topic is not new between prison staff and IP, although an absence of organized end-of-life services is observed in Swiss prisons.
Wahidin, UK, 2011 [17]	Qualitative study	1. 9% of total female incarcerated population in the UK is above 50 ys. 2. Older imprisoned population's housing cost is 3 times higher than younger ones. 3. Correctional facilities not designed for elderly people and end-of-life management.	Develop studies to map the health expenditure of older female incarcerated individuals.	Importance of national strategy development for ageing population's needs within correctional facilities.

IP: Incarcerated Cancer Patient, HC: Health Care, Patient: pt, HP: health provider, ys: years.

equivalent health care (e.g. a medical appointment may be canceled) [14].

Moreover, medication provision should be dealt cautiously due to drug dealing amongst prisoners [14]. The alternative of using skin patches for pain relief is also preferred [12].There are incidents of incarcerated women being denied medical care on account of being hysteric and hypochondriac, which may lead to unnecessary suffering and delay in diagnosis, staging and treatment [15].All these limitations often result negatively on therapy and survival outcomes.

Proper training may be the key to better understand these patients and avoid unpleasant situations [16, 17]. Hospice care sometimes confuses these prison employees who are trained according to strict policies regarding the incarcerated people and now they have to deal with a more care-giving role [14]. As an outcome of the new reality in prisons' healthcare systems, the correctional staff must be trained in new workplace duties, like nursing tasks and involvement in more physical contact and emotional awareness, especially towards end-stage incarcerated cancer patients -opposing to the strict policies of the correctional facilities[13]. This means that all employees within correctional facilities have a working 'manual' to comply with, which establishes the directions and limits within which they have to work, something that the health care staff is usually unaware of [12] (Table 2).

Psychological issues

As individuals, incarcerated patients have to confront numerous problems such as personal, practical, psychological or ethical ones. They have in mind that those who are responsible for their care are a part of the system that has incarcerated them and that increases their vulnerability [14].

Incarcerated cancer patients have difficulty in trusting health professionals due to psychological or physical traumas, or prior discrimination towards them, thus health professionals must be able to understand the patients' background [8]. Another psychological burden derives from the lack of family contact and support, especially during this difficult period of time [12] and oncologists are also unable to contact families concerning the patients' cancer diagnosis.

Given the chronic negative mental health effects of incarceration and suicidal thoughts within this population, mental care should be incorporated in the palliative care [4, 18-20]. However, a psychiatrist may help the patients better understand their condition and express their potential concerns. This way patients can achieve a more coherent understanding of their illness that might lead to a better health related quality of life (HRQoL),as studies have shown[21,22]. Imprisoned patients have to deal not only with the common feelings experienced by a terminal-staged patient such as fear, anxiety and depression, but also with the guilt for their past crimes and possibly troubled family relationships [18].

End-of-life care

Terminally ill patients may undergo depression, delirium, dementia and cognitive impairment [18]. In the study of Stephens et al 37% of the patients required intervention for delirium and this points out how vital a routine screening is for an early diagnosis and treatment of this condition, especially for oncologic patients [19]. Thus, psychiatrists are essential in correctional facilities, so as to diagnose or treat serious mental illness (when providing pharmacological treatment, oncologic treatment should be kept in mind), or act as a mediator for these patients [18] (Table 3).

Although the majority of the incarcerated population still consists of young men, there is a rising number of elderly who are ill and die in prison, meaning that end-of-life care and long-term palliative care should be included in correctional facilities [20]. The elderly is a specific group that needs daily long-lasting health care and many cannot follow the daily routine and working schedule [13]. Neglecting the elderly, terminal staged, incarcerated oncologic patients who die in prison creates a great ethical burden [6].

Stage IV cancer patients require proper medical care and a multidisciplinary team of experts, whether they belong to the general population or the incarcerated one. However, the public opposes to every sort of advantages provided to terminally ill incarcerated people, leading to unjustified suffering without the appropriate palliative care [11].

Terminally ill incarcerated patients are in need of intensive, systematic care. Continuous and multidimensional support is important for a long period when an end of life care takes place [13]. Hospice care in correctional facilities should consist of a multidisciplinary team that includes appropriate care and counseling [14]. Lung cancer is common among the incarcerated [3,4]. Patients with a non-expandable lung or those with malignant pleural effusion, who suffer from severe dyspnea, can benefit from the use of a tunneled pleural catheter. After the implementation of the catheter, it can be drained from a trained employee of the prison without a presence of a nurse or doctor to be obligatory [3].

Table 3. Main psychological issues of the incarcerated cancer patients

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Rothman et al., USA, 2018 [3]	Cross-sectional	IPs dying in hospitals almost 20 ys younger, with shorter hospital stay, less possibilities of an advanced directive and higher % of various chronic diseases.	Prospective studies in order to explore the PC received of the IPs.	Important information on PC services development in correctional institutions and hospitals.
Shojaee et al., USA, 2014 [4]	Retrospective Case-Series	1. IPs with Tummeled Pleural Catheter placement had an instantaneous pain relief. 2. Auto-pleurodesis was successful in three out of six IPs.	Extensive research on cases of human rights violation, best practices and evidence-based practices regarding palliative and end-of-life care in correctional facilities.	1. Airway tumor debulking and stenting as alternative for IPs. 2. Opioids non-efficient for dyspnea due to previous or ongoing substance abuse.
Maschi et al., USA, 2014 [6]	Content analysis	1. Encouraging practices on palliative and end-of-life care: peer volunteering, MDT approaches, staff training and collaboration with community hospice. 2. Possible obstructions: ethical dilemmas (custody vs. care), mistrust amongst staff and inmates, safety issues, concerns regarding possible misuse of medication and institutional, staff, and public apathy to end-staged IPs.	-	1. New policies, practices and advocacy for terminally ill and dying incarcerated individuals, their families and communities. 2. Raise awareness in order to transform society's opinions against terminally ill and dying individuals within the criminal justice system.
Olederu et al., USA, 2019 [8]	Comment	Understanding towards IP's previous negative experiences from HP.	-	Train HPs on IP's HC.
Olederu et al., USA, 2020 [11]	Comment	1. IPs with a death sentence have the same rights in PC as the rest of the community. 2. They should be able to access the MDT that can implement PC.	-	Points out the ethical dilemmas of not providing oncologic PC to IPs.
Chassagne et al., France 2017 [12]	Qualitative study	IPs in France do not receive appropriate PC due to troubled family relations or prison's policies.	-	Collaboration of HP and correctional professionals on end-of-life issues and compassionate release request.
Marti et al., Switzerland, 2017 [13]	Qualitative study	1. There are several institutional logics within the prison system. 2. There are conflicting aims such as punishment and rehabilitation.	Further research on policy and practice of end-of-life system in prison.	1. Points out the dualistic logic in prisons (punishment/ rehabilitation). 2. Gives space to test and launch new practices that could be regulated.
Stone et al., UK, USA, 2011 [14	Integrative Review	Prison hospice services in the USA face challenges in IP's pain relief and trust, while end-of-life care in the UK is delivered outside the correctional facilities.	Research in order to reveal the perspectives of prisoners and their families.	-
Turner et al., UK, 2011 [20]	Qualitative study	1. The prison staff have limited or no training on nursing. 2. Problematic access to medication since drug misuse is common between the IPs. 3. Correctional facilities are inappropriate environments for dying IPs and for PC provision.	Further longitudinal research to draw causations.	Prison staff trained both as healthcare and custodial staff.
Husson et al., The Netherlands, 2012 [21]	Repeated cross-sectional	1. Lymphoma and multiple myeloma IPs were more content with the received information compared with pts with colorectal and endometrial cancer. 2. Disease-specific information was related to better treatment control and illness comprehension. Other services information was related to more negative outcomes.	1. Research for the test and validation of new instruments for measuring emotional distress. 2. Further studies needed on ego defense mechanism to predict outcomes of colorectal IP's HC.	1. Provide information to the IPs according to their needs, skills, values and emotions. 2. IPs need a wide range of information not only related to treatment. 3. Inclusion of a psychologist in the MDT.
Sales et al., Brazil, 2014 [22]	Comprehensive Review	Many colorectal cancer survivors demonstrate significant levels of psychological distress.		Colorectal IPs' personality profile must be considered as a factor for adaptation process, psychological distress and health-related QoL.

IP: Incarcerated cancer patient, ys: years, HoC: hospice care, PC: palliative care, pt: patient, MDT: multi-disciplinary team, HP: health provider

Table 4. Compassionate release of incarcerated cancer patients

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Chassagne et al., France 2017 [12]	Qualitative study	For the HP, CR is the alternative regarding end-of-life care and palliative release.	-	Importance of PC training for HPs working in prisons.
Hanson, USA, 2017 [18]	Review	1. Medically assisted death legal in only 4 US states, compared to countries like Belgium and the Netherlands permitting it since 2001. 2. CR due to terminal illness requires enough time and some IPs die in the process.	-	-
Mitchel et al., USA, 2011 [23]	Continuing Medical Education (CME) Article	1. A HP decides on medical eligibility of a CR which is quite rare in the USA. 2. CR is justified in the lack of dignified IP environment in prison. 3. HP has to advocate for policies that promote access to evidence-based PC, including dignity conserving strategies.	-	HPs are vital in supporting human dignity and CR policies.
Williams et al., USA, 2011 [24]	Author Manuscript	Medical and procedural obstacles met during CR process.	-	Criminal justice professionals can use the evidence-based medical information to ensure the CR legitimacy.
Davies et al., UK, 2010 [25]	Retrospective analysis	Every 5 ys, on average 31 London prisoners diagnosed with cancer between 1986 and 2005. 83% of female prisoners' diagnoses were in situ carcinoma of the cervix and 19% of male prisoners' were lung cancer. No cancer-related deaths in prison, but in hospitals or hospice.	Research for unveiling efficient approaches to prevent or treat cancer.	Higher risk for IP due to socioeconomic status, sexual behavior and smoking.
Maschi et al., USA, 2016 [26]	Review	The compassionate and geriatric release laws detected were divided into six categories: 1. Physical and mental health status. 2. IP's age. 3. Pathway of release decision. 4. Nature of crime (includes assessment of the potential risk and the history of criminal offense). 5. Support after release. 6. Stage of review (includes the review and investigation of CR application).	-	Advocates, researchers and especially social workers are important in the removal of care obstacles and prison conditions improvement.
Pazart et al., France, 2018 [27]	Cross-sectional	15.2 per 10.000 prisoners in need of end of life care. Out of 44, 41(93%) were eligible for CR. Out of 33 prisoners filing for sentence suspension or reduction for medical reasons, 16 had a positive answer.	-	Additional knowledge on medical, social, jurisdictional profile and PC needs of the IP.
Williams et al., USA, 2012 [28]	Author Manuscript	Geriatric care models that analyze issues like multi-morbidity, functional and cognitive impairment, geriatric syndromes and traditional, and PC.	Further studies about the health and healthcare need of older incarcerated people.	Inclusion of a geriatric approach within prisons may lead to older IP's HC improvement.

HP: health providers, CR: compassionate release, Incarcerated Cancer Patient: IP, PC: palliative care, ys: years, HC: health care

Nursing care is usually provided by other inmates [12]. After passing a screening process these volunteers are trained appropriately for their new tasks [14]. Incarcerated volunteers are beneficiary both for their terminal-staged inmates and themselves, since it can help them achieve psychosocial rehabilitation [14] (Table 3).

Compassionate release

In the US, there are certain policies about an early release of the terminally ill [23]. Compassionate release still remains a controversial topic amongst public opinion and certain laws. Therefore, its application remains rare and in many occasions death comes before the approval of the request [24]. Incarcerated people diagnosed as terminally ill are not automatically granted with a release [25]. In the US prisons, the incarcerated patients have to meet certain criteria such as the existence of a serious or chronic health problem, to be 65 years old and have less than half of their sentence remaining to be served. More specifically, the physician of the facility must confirm the diagnosis to request compassionate release, the prison administration reviews the request to be approved by the parole board and the prisoner's health state and general behavior are taken into account [18]. Another important factor is whether there can be a sufficient community care plan for the patient after his/her release [23]. The physicians can advocate for their patients with serious illness to live in the least restrictive, most patient-centered environment that can be achieved without jeopardizing public safety [23]. This whole process may take weeks or months to go through and some of them die along the way. Certain inmates may not request early release and other inmates may not be granted compassionate release after committing a major crime and running the risk of re-offending [26-28].Physicians that were asked about their perspective argued that the release of a dying inmate may work as a symbolic way to show him/her that he/she can die with dignity forgiven by the community [12] (Table 4).

Euthanasia and assisted suicide

Countries like Belgium and the Netherlands offer the choice of euthanasia to imprisoned patients with chronic or terminal conditions, while some states of the USA, like Washington and California have legalized assisted suicide, and Canada provides the options of both euthanasia and assisted suicide. Certainly, ethical issues are posed concerning both the negative and positive aspects of terminating a person's life in an imprisoned environment [18] (Table 5).

Radiotherapy

Cigarette smoking and alcohol abuse exclude chemotherapy or surgery from primary therapy methods [29]. Chronic Human Immunodeficiency Virus (HIV) infection (mainly due to high-risk sexual behavior and drug injection) may interfere with chemotherapy effectiveness and toxicity (low baseline CD4+ lymphocyte count, adverse drug reactions and drug-drug interactions)[30].Our search identified a 'gap' in the current literature related to the delivery of chemotherapy.

It can be concluded that radiotherapy, apart from being safer, is crucial in increasing locoregional control and overall survival. The use of shorter/accelerated, hypofractionated radiotherapy (HR) regimens may be considered because it can bring accurate results in a shorter time [29]. HR can be an option for selected patients. In HR the radiation is divided in a single or in a few fractions (≥ 1), over a shorter period of time (fewer days or weeks). The main advantage of HR is that it can be given into higher doses (>2Gy) than standard conventional radiotherapy. HR and stereotactic body radiotherapy (SBRT) reduce the inconvenience of an extended treatment course [31].

SBRT and stereotactic radiosurgery (SRS), also known as stereotactic ablative radiotherapy (SABR), can be an accepted practice in treating solid small sized lesions, especially in lung cancer patients. SABR delivers a very high dose per fraction and yields satisfying therapeutic effects with lower toxicity rates [31]. All these techniques can be used in early, locally advanced or recurrent neoplasms and can be useful to limit multiple hospital visits.

In case of stage IV cancer, the delivery of radiotherapy may reduce the adverse skeletal-related events (SREs)(i.e. spinal cord compression, pathologic fracture and bone surgery), bleeding, brain metastasis or dyspnea (superior vena cava syndrome or bronchial obstruction)[32-34]. Bone metastases patients may have inadequate pain management in prisons [12]. Radiotherapy, associated with less SREs, may assist in dealing with pain, maintaining mobility and independence, and improving quality of life. Additionally, RT comprises an attractive option for logistic reasons through the use of short courses [34] (Table 6).

Covid-19 and in-prison cancer patients

In the SARS-CoV-2 outbreak, a contingency management has been established by the oncologists [35-37].Due to poor health and nutritional status, most oncologic patients are at an increased risk of COVID-19 infection[38,39]. Immunosuppression from the malignancy itself and/or the anticancer

Table 5. Euthanasia and assisted suicide

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Impact*
Hanson, USA, 2017 [18]	Review	1. Psychiatry principles on end-of-life care also apply in prisons with several adaptations. 2. Medically-assisted-death legalized recently in only 4 US states, compared to countries like Belgium and the Netherlands permitting it since 2001.	Importance of psychiatrists working in prisons to be trained and familiarized with all parameters of end of life and medically assisted suicide in prison.

Table 6. Radiotherapy in incarcerated patients

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Chassagne et al., France 2017 [12]	Qualitative study	Insufficient PC for IPs in France due to prison HC limitations and lack of communication among IPs, caregivers and families.	-	Collaboration of HP and correctional professionals on end-of-life and CR issues.
Turaka et al., USA, 2016 [29]	Letter to the Editor	Management of IPs could be medically and socially challenging because of:	-	Support policy makers in new policies improving IP's QoL and cancer treatment access.
Whyte-Allman et al., Canada, 2020 [30]	Review	1. Limitations on their inclusion in prospective clinical trials. 2. Uncertain immediate parole after terminal illness diagnosis. 3. Difficulty in cancer pain management due to alcohol and drug abuse.	Investigate the input of drag transporters and metabolic enzymes to suboptimal antiretroviral (ARV) anti-viral activities in HIV target cells.	Individualized therapy and patient-specific treatment.
Qiu et al., China, 2020 [31]	Review	Drug transporters and metabolic enzymes contribute to drug absorption, distribution, metabolism and elimination that may bring clinically significant changes of pharmacokinetic and pharmacodynamic drug properties. The effects of stereotactic ablative radiotherapy(SABR) include: a) Radiation-induced inflammatory reactions. b) Anti-tumor immune processes. c) Abscopal effect phenomenon.	The radiotherapy research should try to cover tumor cells, immune cells and metabolic microenvironment	In order to prescribe the dose and fraction of radiotherapy should take into account the number and proportion of differentiated immune cells, differentiation stages and tumor microenvironment.

IP: incarcerated cancer patient, HP: health provider, CR: compassionate release, PC: palliative care, HC: health care

treatment [40-42], HIV + status, also increase the risk of developing severe adverse events, and with a hazard ratio of 3.56, a thorough monitoring of the affected oncologic patients should be provided [42].

Covid-19 cases are rising higher and higher in prisons due to overcrowding. It depends on the prison size and the number of detainees (too many prisoners in small wards), inability to maintain social distances, lack of protective equipment, as well as pre-existing respiratory illnesses or smoking, thus exacerbating Covid-19 infection risk[43, 44].

The oncologists must be careful because some of the common Covid-19 induced symptoms (fatigue, shortness of breath, fever, cough, chest pain, muscle pain, headache, diarrhea) [45] are similar to the radiation-induced adverse reactions. Thus, close monitoring of low grade fever, sore throat, running nose and cough is essential, to determine the cause of symptoms[46, 47].

Broad-based testing, prompt identification of Covid-19 cancer cases, symptom screening, quarantine in the prisons are urgently required because this can help control not only in-prison transmission, but transmission to the surrounding communities as well [48-51].Given the current Covid-19 lockdown measures and the high vulnerability of incarcerated cancer patients, public health authorities should also pay more attention to inmates' psychiatric health care [52] (Table 7).

Patients' rights in penitentiary systems

Every day, more than 1.5 million people in the WHO European Region are incarcerated [53]. These people have a complex health status due to co-occurring physical and mental health conditions and their poor health status is typically the result of entrenched and intergenerational social disadvantage. Risk factors for poor health overlap with risk factors for incarceration, such as substance use, unstable housing and low educational background [53]. WHO admits that there is a lack of continuity in health care provision between prison and the community, after the release of an incarcerated person. That is why the field of prison health must be recognized as a broader issue and an important part of public health, allowing for continuity of health services for prisoners returning to the community [53].

Despite the importance of effective health services and systems in addressing health inequity in prisons, very little is known about these systems in most countries [53]. On the other hand, phrases such as 'patient centered healthcare' and 'putting patients first' have become central in healthcare debates about health policies in Europe, making the notion of patient rights a vital issue. Patient rights have evolved from the general human rights and are similar to them [53,54].

Article 35 of the European Charter of Fundamental Rights provides for a right to health protection as the "right of access to preventive health care and the right to benefit from medical treatment under the conditions established by national laws and practices". The European Charter of Patients' Rights was drafted in 2002 by Active Citizenship Network in collaboration with 12 citizens' organizations from different EU countries. The European Charter of Patients' Rights states 14 patients' rights that together aim to guarantee a "high level of human health protection" (Article 35 of the Charter of fundamental rights of the European Union) and to ensure the high quality of services provided by the various national health services in Europe[55].

The 14 rights are an embodiment of fundamental rights and, as such, they must be recognized and respected in every country. They are correlated with duties and responsibilities that both citizens and health care stakeholders have to assume. The Charter applies to all individuals, recognizing the fact that differences, such as age, gender, religion, socio-economic status etc., may influence individual health care needs [55].

The European Charter of Patient Rights, though general and applicable to all diseases, encouraged Europeans in understanding their rights also as patients. In 2013, clinicians, academicians, researchers collaborated for the "European Cancer Patient's Bill of Rights," presented a patient charter that underpins equitable access to an optimal standard of care for Europe's citizens affected by cancer [56]. The Charter is based on three principles: the right to information and participation in one's care, the right to optimal and timely access to appropriate specialized care, underpinned by research and innovation, and the right to receive care in health systems that ensure improved outcomes, patient rehabilitation, best quality of life, and affordable health care [57].Both the European Charter of Patient Rights and the European Bill of Cancer Patient Rights focus on disease-affected individuals who are free in society, but not on prisoners. Both can indeed be understood as concerning detained people on the basis of fundamental rights, however the reality is very different [57-62].

The European Court of Human Rights, based in Strasbourg, France, interprets the European Convention on Human Rights, a binding international treaty ratified by all 47 member states of the Council of Europe, including the UK. People in detention have been applying to the European Court of Human Rights since its inception with complaints

Table 7. COVID-19 and in-prison cancer patients

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Mauri et al., International, 2020 [35]	Report	Necessity of regular and continuous oncology treatment, assisted by tele-health and home care delivery.	-	Alert plans and service delivery stratification based on epidemiologic data.
Mauri et al., International, 2020 [36]	Review	Six areas of recommendations are identified: 1. Concerns on cancer pts' higher risk of COVID-19 infection. 2. Protocols and measures to avoid cancer pts' infection. 3. Process instructions for symptomatic pts. 4. Guidance on stress and anxiety management. 5. Importance of trust between pts and physicians. 6. Procedures to be followed at cancer centers.	-	Summarized (based on global scientific guidelines) recommendations for cancer pts during the COVID-19 pandemic.
Cortiula et al., Italy, 2020 [37]	Editorial	COVID-19 situation alters the attention of health care system and dominates any other clinical practice. Negative implications on cancer pts due to delays intreatment or follow up.	Research on easily available COVID-19 diagnostic tests to identify possible cases prior transmission.	-
Pentheroudakis et al., ESMO, 2020 [38]	Website	No solid data of COVID-19 effect on cancer pts, yet people on chemotherapy, extensive radiotherapy or having received chemotherapy the last 3 months may be at greater risk.	Further research on cancer care administration during the pandemic.	ESMO try to give some answers regarding the pandemic of COVID-19 and its impact on cancer pts.
Lordick et al, ESMO, 2020 [39]	Website	Higher COVID-19 vulnerability in specific pts groups like cancer pts with malignant hematological diseases, long duration of leukocytopenia, multiple myeloma and immunosuppression.	-	-
Kamboj et al., International, 2009 [40]	Review	Main categories of cancer pts' nosocomial infections: respiratory pathogens, fungal pathogens, blood-borne viral pathogens, catheter-related bloodstream infections, drug-resistant and gram-negative bacteria and clostridium difficile.	-	Awareness on avoiding nosocomial pathogens transmission through intense preventive, surveillance and control procedures.
Sica et al., Italy, 2017 [41]	Review	Functions, expansion and survival of myeloid-derived cells and tumor-associated macrophages are key targets of several strategies that aim to prevent tumor promoting phenotypes and reactivate specific antitumor response. The expansion of these populations involves fin-tuning since its modifications could reinforce either immunosuppression or autoimmunity.	Research in order to further understand myeloid cells' phenotype, differentiation, cellular functions and influence on the microenvironment.	Targeting myeloid cells seems to be a promising prospect in cancer and autoimmune disease.
Liang et al., China, 2020 [42]	Comment	1. Higher COVID-19 infection risk for cancer pts. 2. Poorer outcomes from COVID-19 for cancer pts.	-	3 main strategies suggested: 1. Potential postponement of adjuvant chemotherapy and elective surgery for stable cancer in endemic areas. 2. Stronger personal protection measures by cancer pts or survivors. 3. More intensive surveillance or treatment for COVID-19 infected cancer pts.

Continued on the next page

Name of author, Country, Year of publication	*Type of study*	*Main findings*	*Implications for future research*	*Impact*
Saloner et al., USA, 2020 [43]	Research letter	5.5 times higher case rate of COVID-19 and 3.0 times higher adjusted death rate for incarcerated people compared to the US population.	Research that incorporated data from jails and other detention facilities.	Highlights the spread of COVID-19 within the prisons.
Wallace et al., USA, 2020 [44]	Report	86% of the jurisdictions reporting, identified at least one case of COVID-19 among incarcerated or detained persons or staff members.	-	Identification of COVID-19 infected incarcerated individuals or staff members to avoid spread.
Yang et al., China, 2020 [45]	Letter to the editor	Careful consideration or prohibition of integrative cancer therapies in endemic areas. More intensive protection plans for pts and cancer therapists.	More Chinese herbal medicine clinical trials should take place to better understand the treatment of COVID-19 and other infectious diseases.	Monitoring and prioritization enhancement of COVID-19 infected cancer pts.
Tey et al., China, 2020 [46]	Report	Importance of oncology treatments continuation during the COVID-19 outbreak.	-	Summary of several adjustments for radiation oncology departments to manage COVID-19.
Passaro, ESMO, 2020 [47]	Website	Immediate hospitalization of COVID-19 infected cancer pts, even with delays on anti-cancer treatment.	-	-
Wallace et al., USA, 2020 [48]	Report	A COVID-19 Management Assessment and Response (CMAR) tool was used to assess 24 facilities. However, the inability to quarantine exposed individuals and keep social distancing probably led to further spread.	-	The CMAR tool may assist in COVID-19 management practices assessment and guidance to fill possible voids in strategies.
Hagan, USA, 2020 [49]	Report	Mass testing in US prisons gave a median 12.1-fold increase compared to previous symptom-based testing practice.	-	Mass testing is more useful for COVID-19 prevalence assessment and transmission management.
Jimenez et al., USA, 2020 [50]	Research Letter	Among the incarcerated individuals and staff in Massachusetts the rate of COVID-19 cases was 2.91 times higher than the Massachusetts general population and 4.8 times higher than the US general population.	Research that includes data of death and demographic characteristics.	The study adds date to the literature that gives emphasis to high COVID-19 rates in correctional and detained facilities.
Oladeru et al., USA, 2020 [51]	Letter to the Editor	1. Importance of Personal Protective Equipment for correctional and healthcare staff's safety. 2. Provision of oxygen and life support supplies in correctional facilities. 3. Protection of healthcare and correctional staff to avoid COVID-19 transmission. 4. Emotional support towards socially isolated incarcerated individuals. 5. Social distancing enhancement through decarceration of older prisoners or with chronic illnesses.	-	State's role in protecting and supporting health care and prison staff.
Fovet et al., France, 2020 [52]	Review	3 levels of psychiatric care for incarcerated population implemented during the pandemic: 1. Protect the continuity of care. 2. Support the inmates during the lockdown. 3. Prevent the spread of the disease.	-	Public health authorities should support health care in the correctional facilities.

pts: patients, ESMO: European Society of Medical Oncologists.

relating to issues of overcrowding, poor conditions, absence of facilities, violence, and poor medical care. These cases are generally considered under Article 3 of the European Convention on Human Rights: the prohibition of torture and inhuman or degrading treatment or punishment [57- 62].

The Health in Prisons European Database (HIPED) aims at mapping prison health systems in Europe [53]. In most HIPED countries the Ministry of Justice is the authority responsible for health-care budget and funding. Less than 50% of the countries report the Ministry of Health as responsible for prison health systems assessment and less than 60% for the inspection of hygiene, nutrition and living conditions [53].

As for palliative care, which is most important for cancer patients, it is often not available, due to the challenging and demanding environment of a correctional institution, even though it may be the only appropriate setting for some end-of-life prisoners [63]. The generally poorly equipped buildings are often not suited to the needs of older, with dementia, autonomy and motility problems, cancer patients [64, 65].

The regime and physical environment of a prison conflicts with best practices in palliative and end of life care. This must be considered when planning service delivery for this population. The importance of human contact should not be forgotten for prisoners at the end of life, whether it be family or friends (in or out of prison)[63]. The very notion of "rights" for incarcerated people is not easily accepted and understood but individuals as patients should be respected and have access to health care. Despite policy work in this direction a lot remains to be achieved on the implementation level in almost all countries to reach the goals of the SDGs- Sustainable Development Goals as far as access to health care is concerned.

One of the strengths of this study is that it reviewed literature on the not-often-discussed topic of health care management of incarcerated cancer patients. Additionally, it includes data from different data bases as well as information from associations' web links in order to approach the issue comprehensively. Apart from that, the paper uses quite recent literature since it covers the subject of COVID-19 infections in the correctional facilities.

However, there are some limitations. We included papers or at least an abstract only in the English language. Secondly, we conducted a narrative review due to the limited information on this subject. And lastly, most evidence derived from the USA and very few from European countries, indicating how understudied the incarcerated patients are around the globe.

Conclusion

Correctional facilities must encourage teamwork between healthcare and correctional professionals in order to improve the provided palliative care [66, 67]. The reciprocal lack of trust between inmates and healthcare staff aggravates an already deficient correctional health care system. Correctional staff must also try for a better understanding of the imprisoned patients, their special needs and last wishes [66, 67] (Table 8).

The outbreak of COVID-19 makes the various oncological treatments extremely difficult to be performed. Prisoners are susceptible to COVID-19 infection and cancer history is defined as a poor prognostic factor [68]. As clinicians, we have to continue providing treatments to cancer patients in the face of COVID-19 uncertainty. The use of telemedicine may significantly help in follow-up care [68, 69].

We should always bear in mind that human beings should have the right to decent and adequate care, regardless of background. In a rehabilitative philosophy, that should be the real goal of our society: all humans have the right to pursue a decent quality of life and to access health care services [70]. The management of hospitals should require instructions from the pertinent Health and Justice national authorities for the handling of the patient during various procedures, while being in full compliance with the laws, as well as the principles and ethics governing hospital care and nursing, without neglecting the patient's rights.

Table 8. Key messages of the present study

Health care professionals should:
• Advocate in the best interest of the incarcerated patients and protect their rights.
• Apply evidence based medical care adjusted to this population's needs.
The administration of the correctional facilities needs to:
• Cooperate with health care professionals to provide palliative care for incarcerated patients.
• Train their healthcare and correctional staff to provide proper care for the elderly and terminally ill inmates.
• Keep in mind that incarcerated individuals may have difficulty in trusting them.
Policy makers and states could:
• Support research regarding the health care data of the imprisoned population.

Authors' contributions

All persons listed as authors on the manuscript have contributed significantly to preparing the manuscript. MT, EKS, KK and KA contributed to the conception and design of the study. DM, AS, PV, DS, AS and IK, made the acquisition of data. NT, NC, FC, FA, RAdM and KMA, analyzed the data. NT, NC, FC, FA, RAdM, KMA, TH, IN, DM, MN, FdL and KA revised the manuscript for important intellectual content. MT, EKS and KK, made the final approval of the version to be submitted. All authors have read and approved the final version of the manuscript.

Conflict of interests

The authors declare no conflict of interests.

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